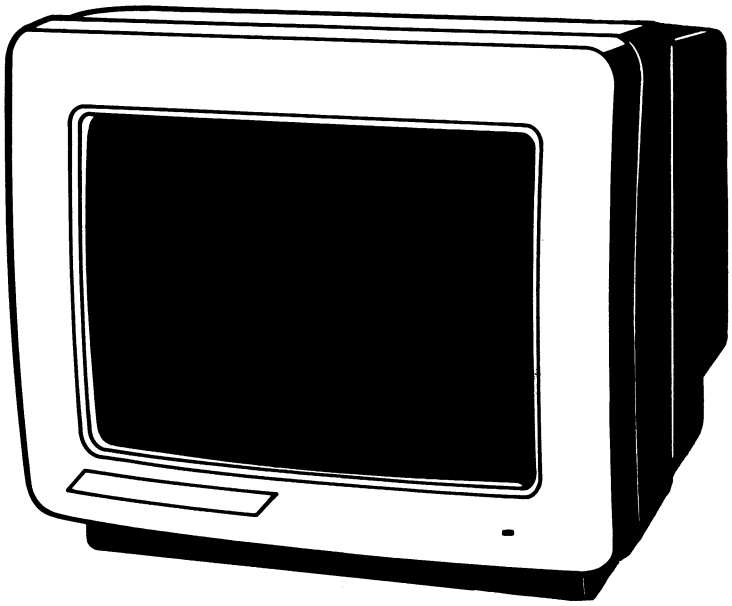
ATARI®

Chassis No.: MT-9

SM124™

HIGH-RESOLUTION MONOCHROME MONITOR



CONTENTS

SAFETY PRECAUTIONS 2
SPECIFICATIONS 3
ADJUSTMENT AND MAINTENANCE 3
THEORY OF OPERATION 5
BLOCK DIAGRAM 8
TIMING CHART 9
TRANSISTOR & IC BASING 10
VOLTAGE CHART 11
COMPONENT OF P.C.B 13
TROUBLESHOOTING CHART 16
REPLACEMENT PARTS LIST 26
EXPLODED VIEW 29
SCHEMATIC DIAGRAM 30

SERVICE MANUAL

SAFETY PRECAUTIONS

Operation of the monitor outside of its cabinet or with its back removed involves a shock hazard. Work on these models should only be performed by those who are thoroughly familiar with precautions necessary when working on high voltage equipment.

Exercise care when servicing this chassis with power applied. Many B plus and video input terminals are exposed which, if carelessly contacted, can cause serious shock or result in damage to the chassis. Maintain interconnecting ground lead connections between chassis, picture tube dag and power PWB earth when operating chassis.

Certain HV failures can increase X-ray radiation. The monitor should not be operated with HV levels exceeding the specified rating for their chassis type. The maximum operating HV specified for the chassis used in these receivers is 12 KV + 1 − 2KV at zero beam current with a line voltage of **220V AC.** Higher voltage may also increase possibility of failure in HV supply.

It is important to maintain specified values of all components in the horizontal and high voltage circuits and anywhere else in the monitor that could cause a rise in high voltage or operating supply voltages. No changes should be made to the original design of the monitor.

Components shown in the shaded areas on the schematic diagram and/or identified by an Ⓢ in the replacement parts list should be replaced only with exact Factory recommended replacement parts. The use of unauthorized substitute parts may create a shock, fire, X-radiation, or other hazard.

To determine the presence of high voltage, use an accurate, high impedance, HV meter connected between second anode lead and the CRT dag grounding device. When servicing the High Voltage System, remove static charge by connecting a 10K ohm resistor in series with an insulated wire (such as a test probe) between picture tube dag and 2nd anode lead. (Before AC line cord is disconnected from AC supply).

The picture tube used in this monitor employs integralimplosion protection. Replace with tube of the same type number for continued safety. Do not lift picture tube by the neck. Handle the picture tube only when wearing shatter-proof goggles and after discharging the high voltages completely. Keep others without shatter-proof goggles away.

SAFETY INSPECTION

Before returning the monitor to the user, perform the following safety checks:

PROTECT YOUR CUSTOMER

1. Inspect all wire harmless assemblies to make certain that the wires are not pinched or that any between hardware is not lodged between the chassis and other metal parts in the monitor.
2. Replace all protective devices such as non-metallic control knobs, insulating fishpapers, cabinet backs, adjustment and compartment covers or shields, isolation resistor-capacity networks, mechanical insulators, etc.
3. To be sure that no shock hazard exists, a check for the presence of leakage current should be made at each exposed metal part having a return path to the chassis (input terminal, cabinet metal, screw heads, knobs and/or shafts, escutcheon, etc.) in the following manner.

   Plug the AC line cord directly into a **220V AC** receptacle. (Do not use an Isolation Transformer during these checks.) All checks must be repeated with the AC line cord plug connections reversed. (If necessary, a nonpolarized adapter plug must be used only for the purpose of completing these checks.)

If available, measure current using an accurate leakage current tester. (Use Standard Equipment Item No. 21641.) Any reading of 0.26 A or more is excessive and indicates a potential shock hazard which must be corrected before returning the monitor to the owner.

If a reliable leakage current tester is not available, an alternate method of measurement should be used. Using two clip leads, connect a 1.5K ohm, 10 watt resistor in parallel with a 0.15MF capacitor in series with a known earth ground. Use a VTVM or VOM with 1000 ohms per volts sensitivity, or higher to measure the AC voltage drop across the resistor. Any reading of 0.35 volt RMS or more is excessive and indicates a potential shock hazard which must be corrected before returning the monitor to the owner.

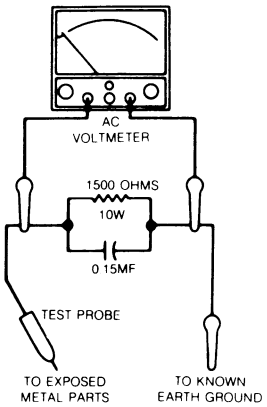


Fig. 1, Voltmeter Hook-up for Safety Check

SPECIFICATIONS

1. CATHODE RAY TUBE

Type: Non-glare DARK
Size & Deflection angle: 12″, 90°
Neck diameter: 20 mm
Phosphor: Paper White

2. INPUT

Input signal: TTL Signal
- Video : 1 Vp-p Positive
- Audio : 1 Vp-p
- Vertical Drive : 5 ± 1.5 Vp-p Negative
- Horizontal Drive : 5 ± 1.5 Vp-p Negative

Power Input : AC 220V 50Hz, 0.26A
Input Connector : 13 Pin Din Connector

3. SCANNING

Horizontal frequency : 35.7 KHz
Horizontal retrace time : 6.3 uS
Vertical frequency: 71.2 Hz
Vertical retrace time : 420 uS

4. VIDEO

- Display Area (HXV) : 210 mm × 130 mm
- Amplifier Type : Linear
- Frequency band width : 32 MHz
- Horizontal resolution : 1100 lines at center
- Display character : 80 × 50 characters

5. GEOMETRIC DISTORTION: 2.5% max.

6. LINEARITY

- Horizontal : 10% max.
- Vertical : 10% max.

7. EXTERNAL CONTROLS: BRIGHTNESS, CONTRAST, ON/VOLUME

ADJUSTMENT AND MAINTENANCE

CIRCUIT PROTECTION

Circuit protection is provided by one Mini fuse, on the power pc board. A 0.5 Ampere fuse (F901) is wired into one side of the AC line and provides primary protection to the entire chassis.

1. CENTERING ADJUSTMENT

CAUTION: The following adjustment points are close to the high voltage yoke terminal. If the raster is not centered in the raster opening, it may be centered by removing the cabinet back and adjusting the centering tabs on the neck of the tube, located at the rear of the deflection yoke. Turn the whole device clockwise or counter-clockwise. To increase the amount of raster shift, move the two tabs which project from the device, farther apart. If the raster is tilted on an angle, it may be straightened by loosening the deflection yoke locking clamp and rotating the deflection yoke.

2. FOCUS

Adjust the foucs control (VR703) for best overall focus of the test pattern (marked with the symbol "%"). Usually the center and corners of the screen do not focus at the same setting and a compromise must be made.

3. BRIGHTNESS

Adjust subbrightness control (VR301) for visual cut off of the raster when external brightness is turned to maximum.

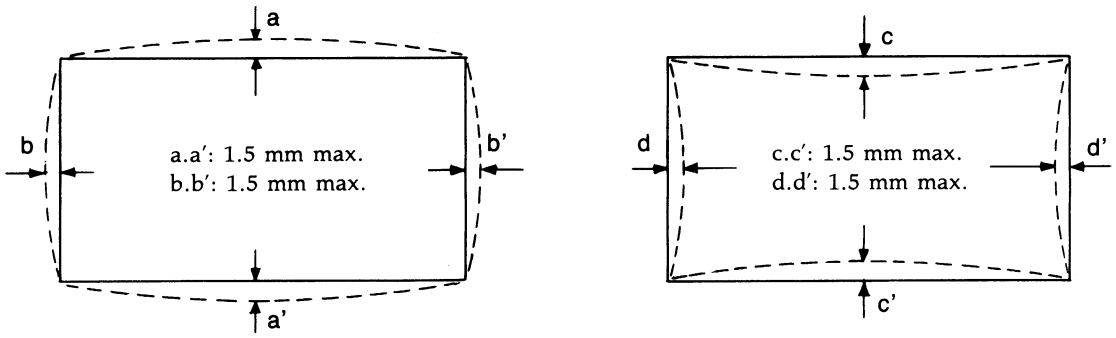
4. VERTICAL SIZE AND LINEARITY ADJUSTMENT

The vertical size control (VR602) should be adjusted for the picture to fill the screen vertically, the linearity control (VR603) should be adjusted for best overall vertical linearity. Adjustment of either control will not affect the adjustment of the other.

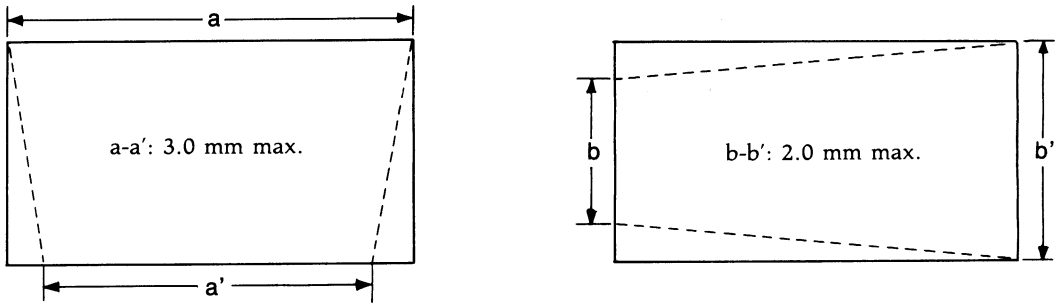
5. HORIZONTAL SIZE AND LINEARITY ADJUSTMENT

The horizontal size control (L702) is located on the main PCB, it should be adjusted for the picture to fill the screen horizontally, the linearity control (L703) should be adjusted for the best overall horizontal linearity adjustment so neither control will affect the adjustment of the other.

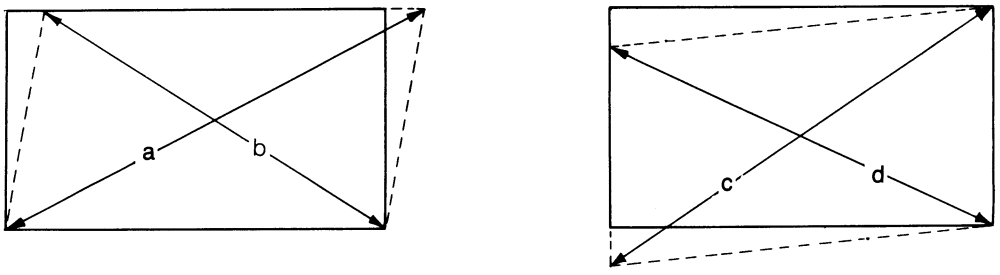
PINCUSHION AND BARRELLING



TRAPEZOID



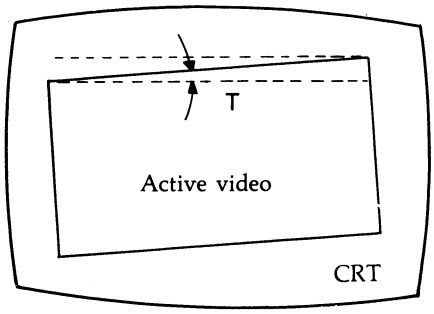
PARALLELOGRAM



a-b: 2.0 mm max.

c-d: 2.0 mm max.

YORK TILT



T = 1° max.

Fig. 2, Geometry Measurements

THEORY OF OPERATION

1. VIDEO AMPLIFIER

The Fig. 3 details the cascade video amplifier. Video amplification is provided by the Q302 and Q303. Q302 and Q303 are connected in a cascade configuration. Q302 operates as a common emitter and Q303 operates in the common base configuration. This minimized the miller effect input capacitance and the defining breakdown parameter for Q302 which becomes BVCBO as opposed to BVCEO.

This enables selection of a higher speed/lower breakdown transistor to be used in the video amplifier.

The emitter of Q303 is driven by the collector of Q302 which is a high frequency transistor. Overall voltage gain for the stage is determined by the ratio of R312 to R311. Bandwidth is whthin 3dB to 32 MHz.

2. VERTICAL DEFLECTION

The vertical deflection circuit consists of an IC TDA1170D and the vertical deflection coil of the DY (and associated circuitry). The IC TDA1170D incorporates all the functions for providing the yoke of the MONITOR with the current required for vertical deflection.

The preamplifier is a high input impedance differential type, with inverted input available at pin 1.

The non-inverting input is fixed internally in the circuit at a stabilized voltage of approximately 2.2V. During flyback, the flyback generator produces a voltage equal to approximately double the supply voltage, and this is applied at the yoke by means of the power Amplifier. The oscillator is a threshold type with a high degree of frequency stability. It is synchronized with a circuit which receives either positive or negative sync pulses and ensures complete immunity from noise throughout most of the scanning time.

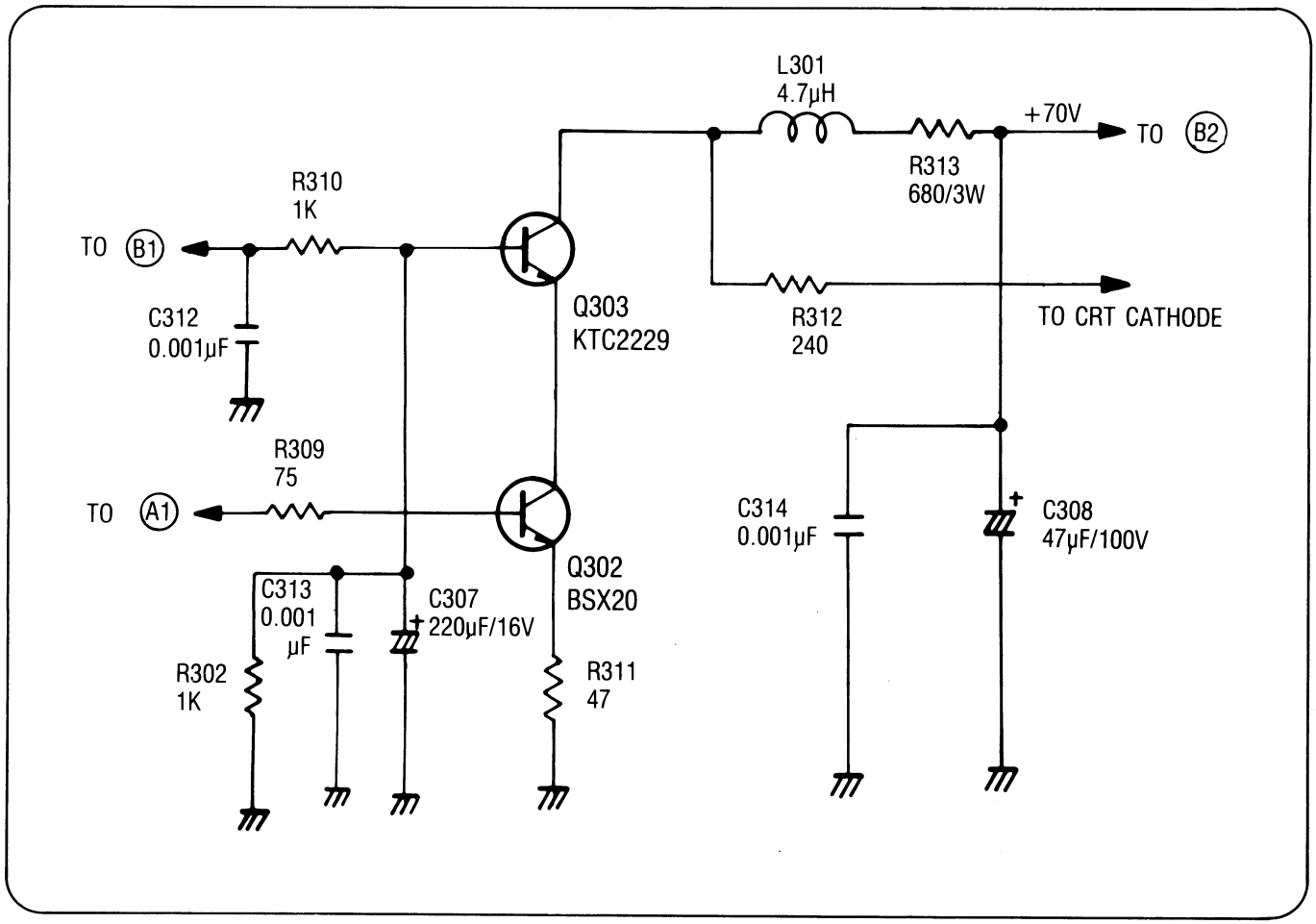


Fig. 3 Video Amplifier

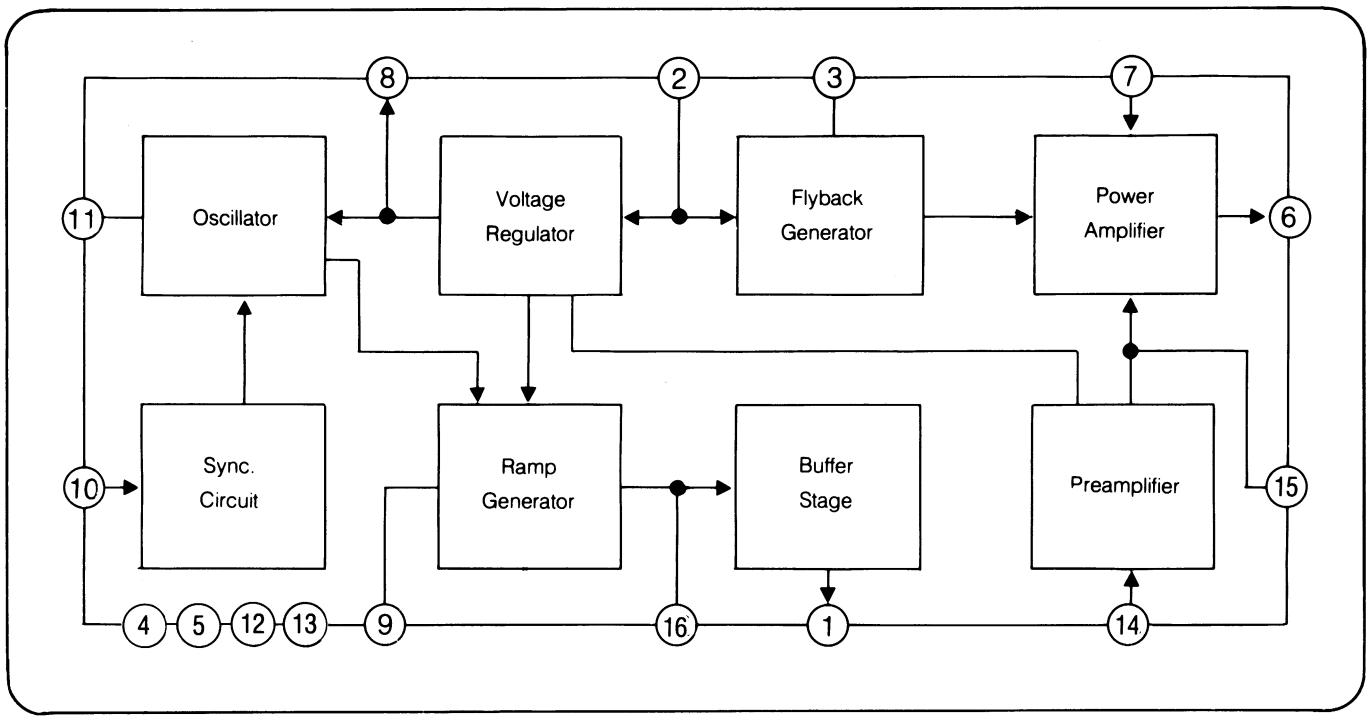


Fig. 4, Block Diagram of the TDA 1170D

3. HORIZONTAL DEFLECTION

When the SM124 Model is not connected to the PC, Q704 and Q705 is a astable circuit that oscillate a higher frequency than H-sync signal. When being connected to the PC, the astable circuit is operated by H-sync width that is altered by monostable circuit which consists of Q702 and Q703.

4. POWER SUPPLY

The 220V AC line voltage is applied to the primary of the power transformer (T901) where it is stepped down through the secondary winding to approximately 16.7 (AC). After passing through the bridge rectifier circuit and filter (C905), an regulated DC supply voltage is approximately 22V (DC). The 22V unregualted B+ voltage is applied directly to the input of the B+ regulator IC901.

The output of the B+ regulator IC901 is 12V (DC). It is stepped down through the IC301 to 5V. The 5V (DC) is applied to IC302.

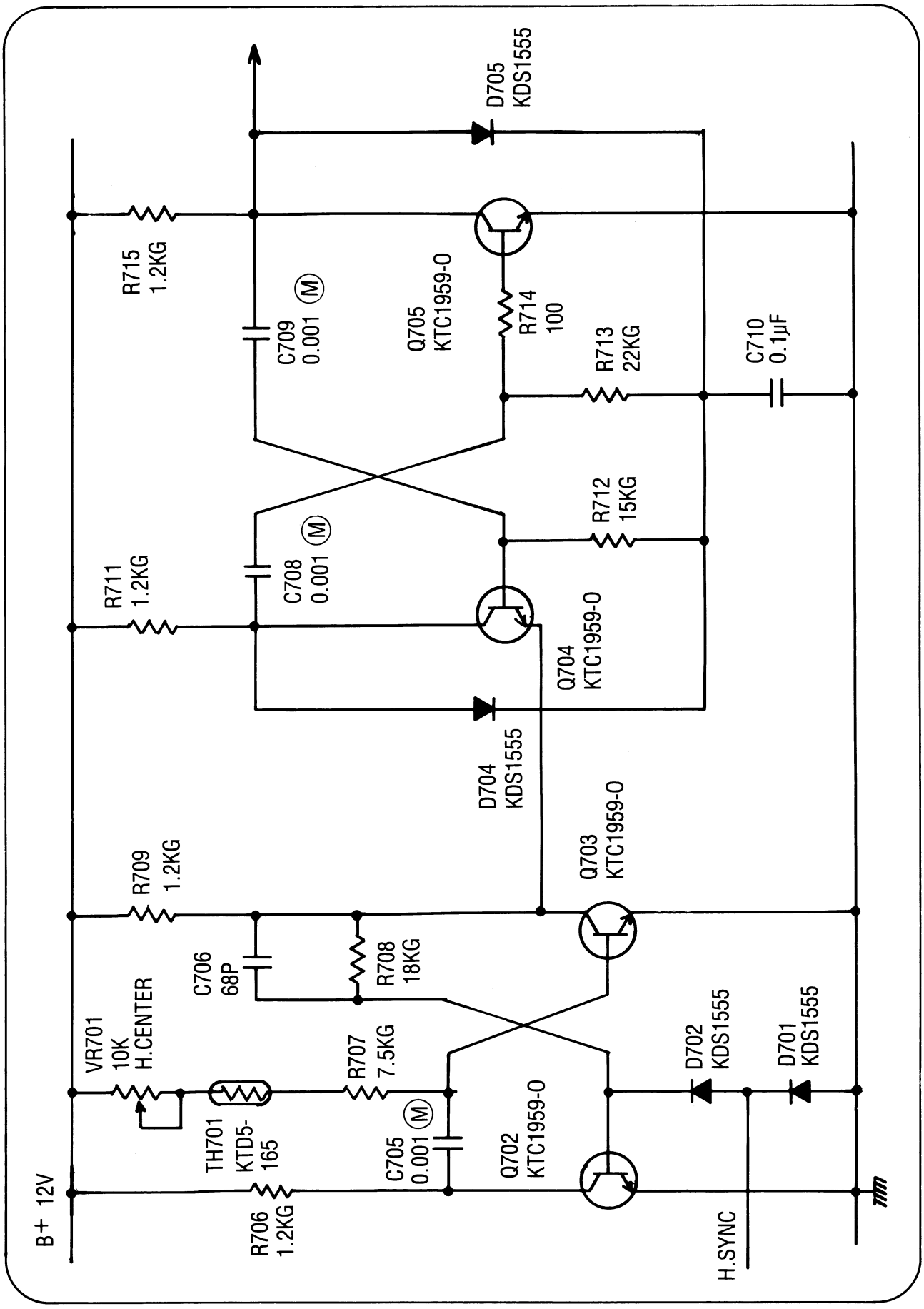
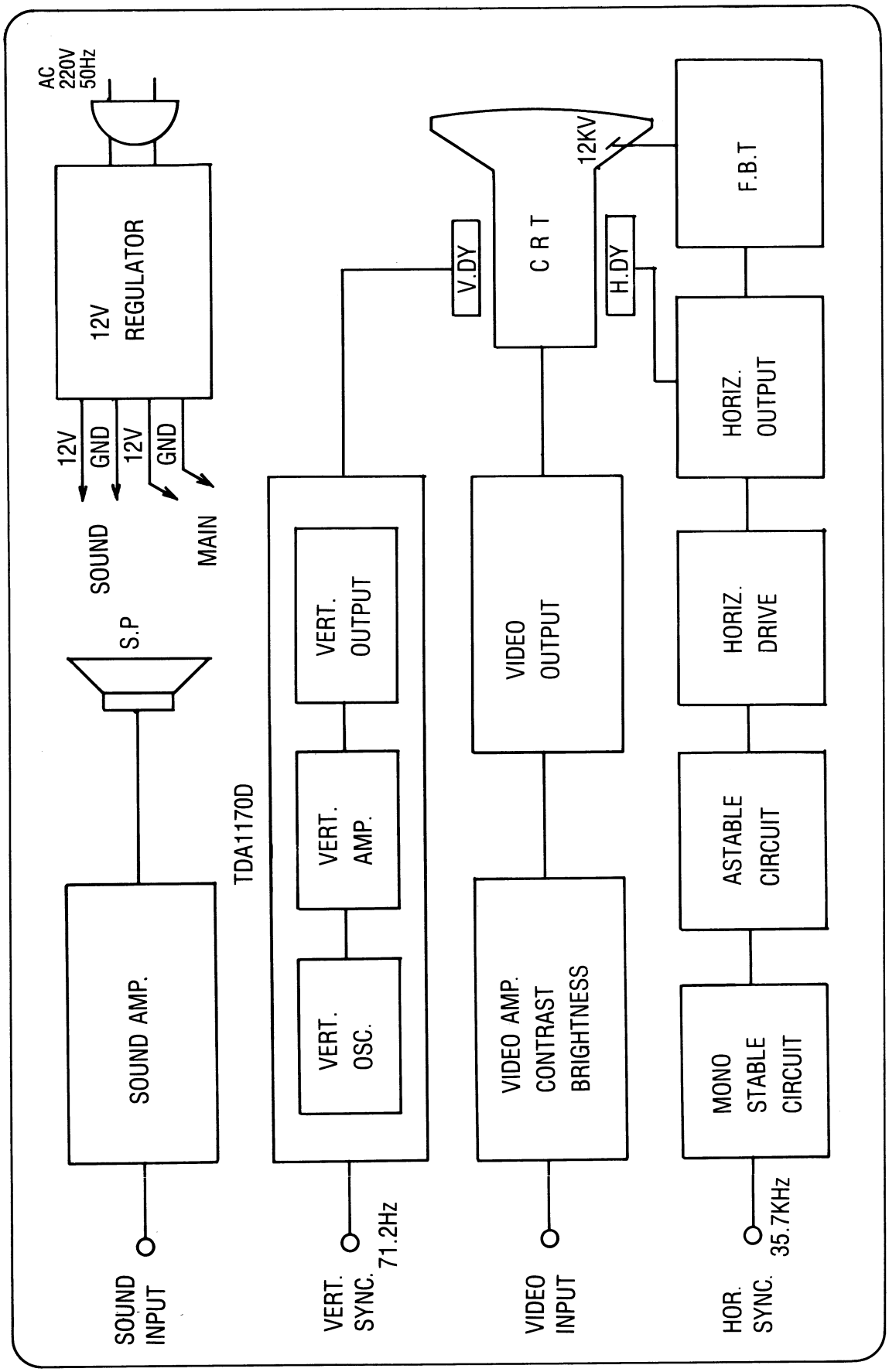
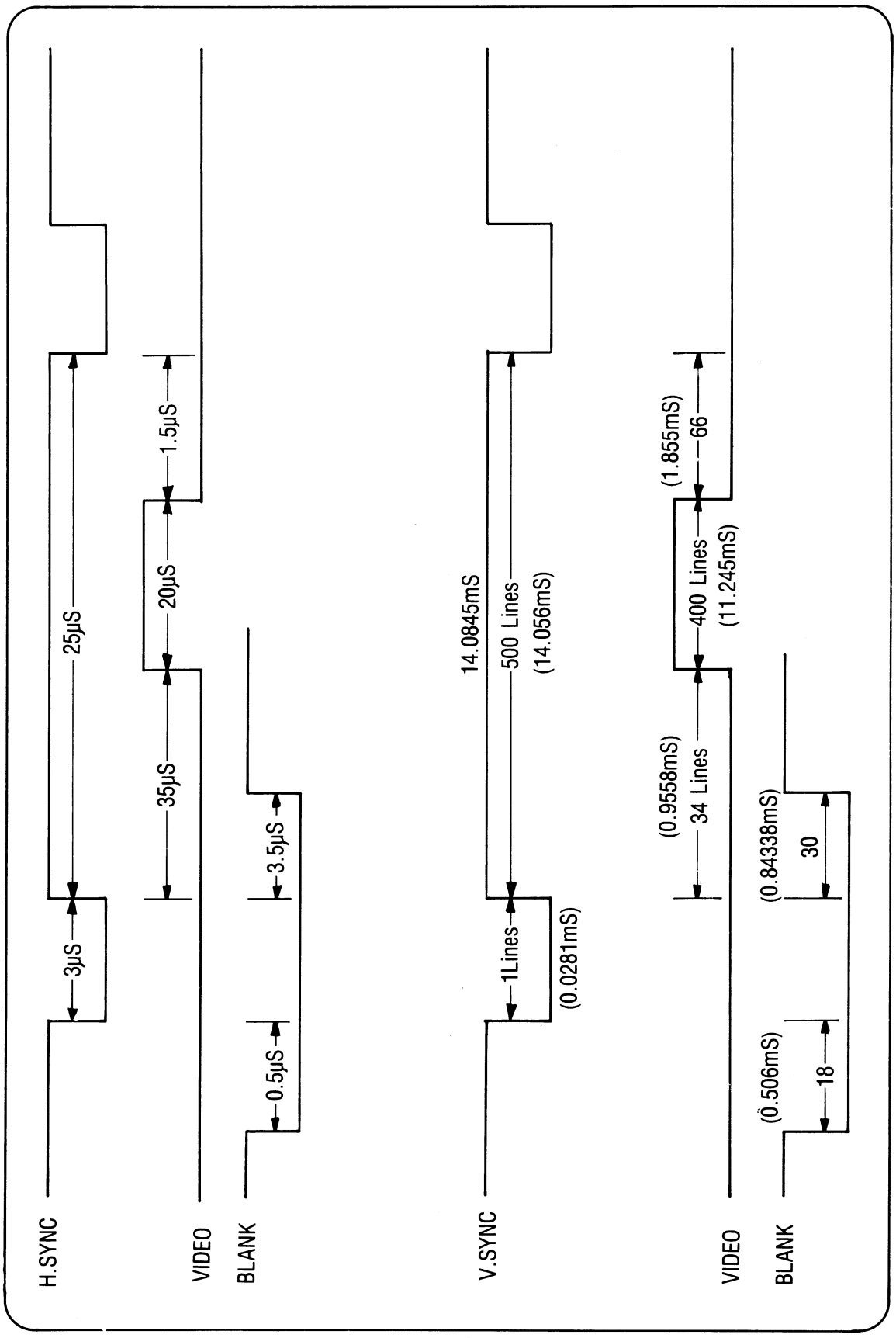


Fig. 5, Horizontal Circuit

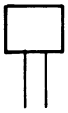
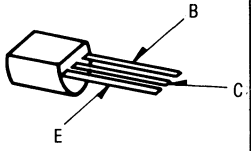
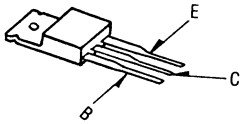
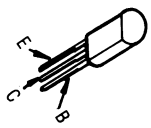
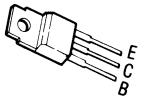
BLOCK DIAGRAM

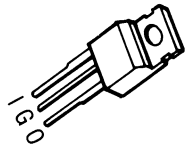
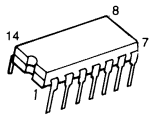
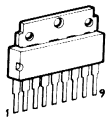
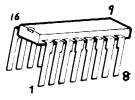
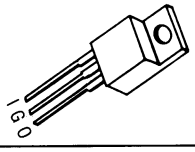


TIMING CHART



TRANSISTOR & IC BASING

REFERENCE NO.	FIGURE	DESCRIPTION
D601,D701,D702 D704,D705		KDS1555
D707,D901,D902 D903,D904		IN5402 RGP30J
D602,D706,D708 D709,D710,D711		RGP10D RGP10G
LED		SLP262B
D712		ERB26-20
Q301,Q701,Q702 Q703,Q704,Q705 Q706,Q707		KTC1959 KTA562TM
Q901		KTA473
Q303		KTC2229
Q302,Q304		BSX20
Q708		BU806

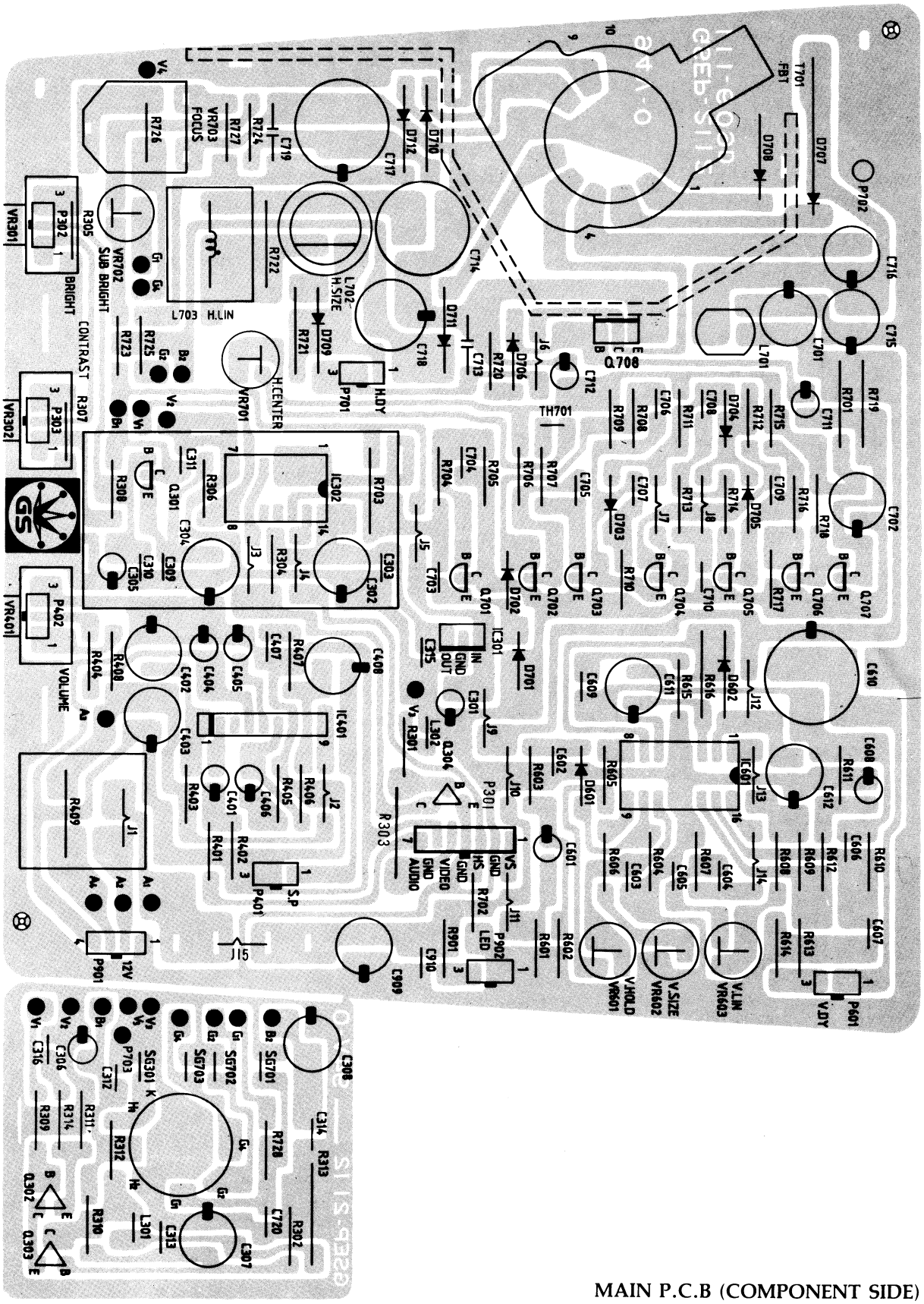
REFERENCE NO.	FIGURE	DESCRIPTION
IC301		GL7805
IC302		SN7406
IC401		AN5265
IC601		TDA1170D
IC901		MC78T12CT

VOLTAGE CHART

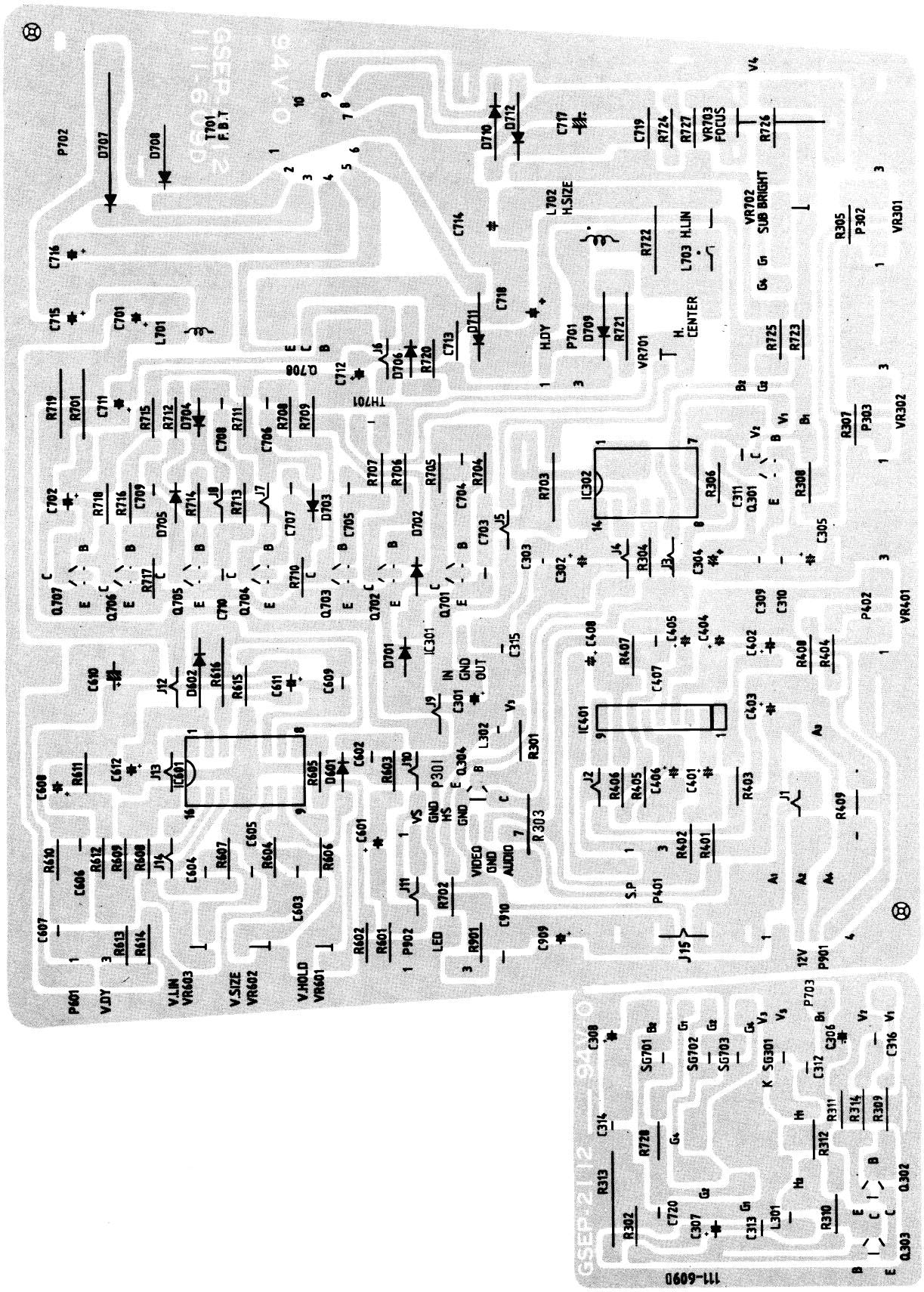
TR NO.	TYPE	FUNCTION	INPUT CONDITION	B	E	C
Q301	KTC1959	BRIGHT/CONTRAST ADJUSTMENT	NO SIGNAL	3.87	3.25	11.94
			1Vp-p VIDEO SIGNAL	3.92	3.28	11.91
Q302	BSX20	VIDEO OUTPUT	NO SIGNAL	0.26	0	5.58
			1Vp-p VIDEO SIGNAL	1.93	1.37	5.52
Q303	KTC2229	VIDEO OUTPUT	NO SIGNAL	5.0	5.0	7.2
			1Vp-p VIDEO SIGNAL	5.88	5.51	51.0
Q304	BSX20	VIDEO INPUT	NO SIGNAL	0.02	0	5.01
			1Vp-p VIDEO SIGNAL	0.50	0	2.25
Q701	KTC562	H.FREQUENCY DETECTOR	NO SIGNAL	3.94	0.01	0
			1Vp-p VIDEO SIGNAL	0.58	−0.14	0
Q702	KTC1959	MONOSTABLE MULTI VIBRATOR	NO SIGNAL	0.04	0	9.0
			1Vp-p VIDEO SIGNAL	0.41	0	5.38
Q703	KTC1959	MONOSTABLE MULTI VIBRATOR	NO SIGNAL	0.69	0	0.04
			1Vp-p VIDEO SIGNAL	−0.17	0	2.47
Q704	KTÇ1959	ASTABLE MULTI VIBRATOR	NO SIGNAL	−0.25	0	2.82
			1Vp-p VIDEO SIGNAL	−0.07	0	2.46
Q705	KTC1959	ASTABLE MULTI VIBRATOR	NO SIGNAL	−0.78	0	4.2
			1Vp-p VIDEO SIGNAL	−0.75	0	4.00
Q706	KTC1959	H.INVERTER	NO SIGNAL	0.48	0	0.33
			1Vp-p VIDEO SIGNAL	0.46	0	0.35
Q707	kTC1959	H.DRIVE	NO SIGNAL	0.33	0	2.93
			1Vp-p VIDEO SIGNAL	0.33	0	2.71
Q708	BU806	H.OUTPUT	NO SIGNAL	−0.26	0	29.7
			1Vp-p VIDEO SIGNAL	0.04	0	28.9

IC NO.	IC TYPE	FUNCTION	PIN NO.	OPERATING CONDITION	VOLT
IC 601	TDA 1170D	VERTICAL DEFLECTION IC	1	1Vp-p Video signal	2.47
			2	1Vp-p Video signal	11.88
			3	1Vp-p Video signal	0.82
			4	1Vp-p Video signal	0
			5	1Vp-p Video signal	0
			6	1Vp-p Video signal	6.41
			7	1Vp-p Video signal	11.52
			8	1Vp-p Video signal	6.58
			9	1Vp-p Video signal	6.71
			10	1Vp-p Video signal	0
			11	1Vp-p Video signal	2.80
			12	1Vp-p Video signal	0
			13	1Vp-p Video signal	0
			14	1Vp-p Video signal	2.10
			15	1Vp-p Video signal	0.67
			16	1Vp-p Video signal	1.58
IC 401	AN5265	AUDIO IC	1	1Vp-p Video signal	11.69
			2	1Vp-p Video signal	5.2
			3	1Vp-p Video signal	0.01
			4	1Vp-p Video signal	0.1—10.29
			5	1Vp-p Video signal	5.32
			6	1Vp-p Video signal	5.41
			7	1Vp-p Video signal	0
			8	1Vp-p Video signal	5.46
			9	1Vp-p Video signal	11.78

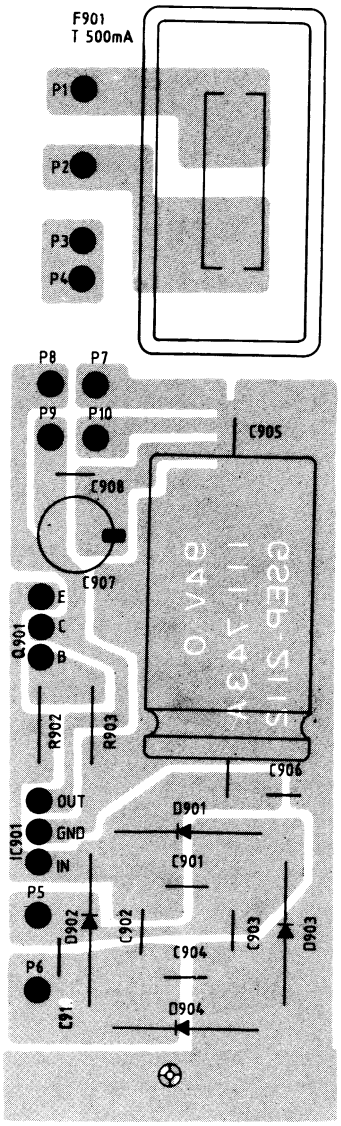
COMPONENT OF P.C.B



MAIN P.C.B (COMPONENT SIDE)



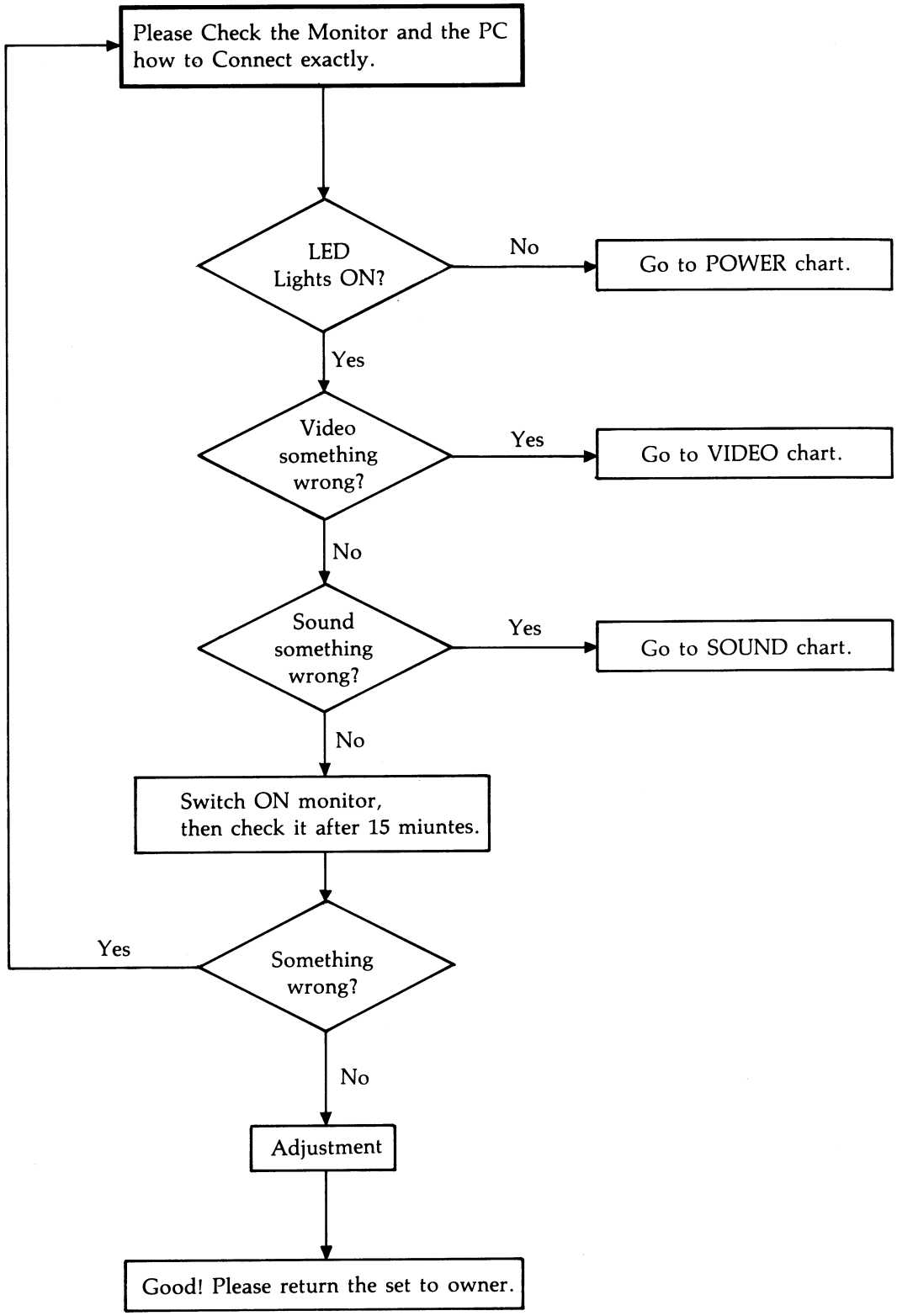
MAIN P.C.B (SOLDER SIDE)



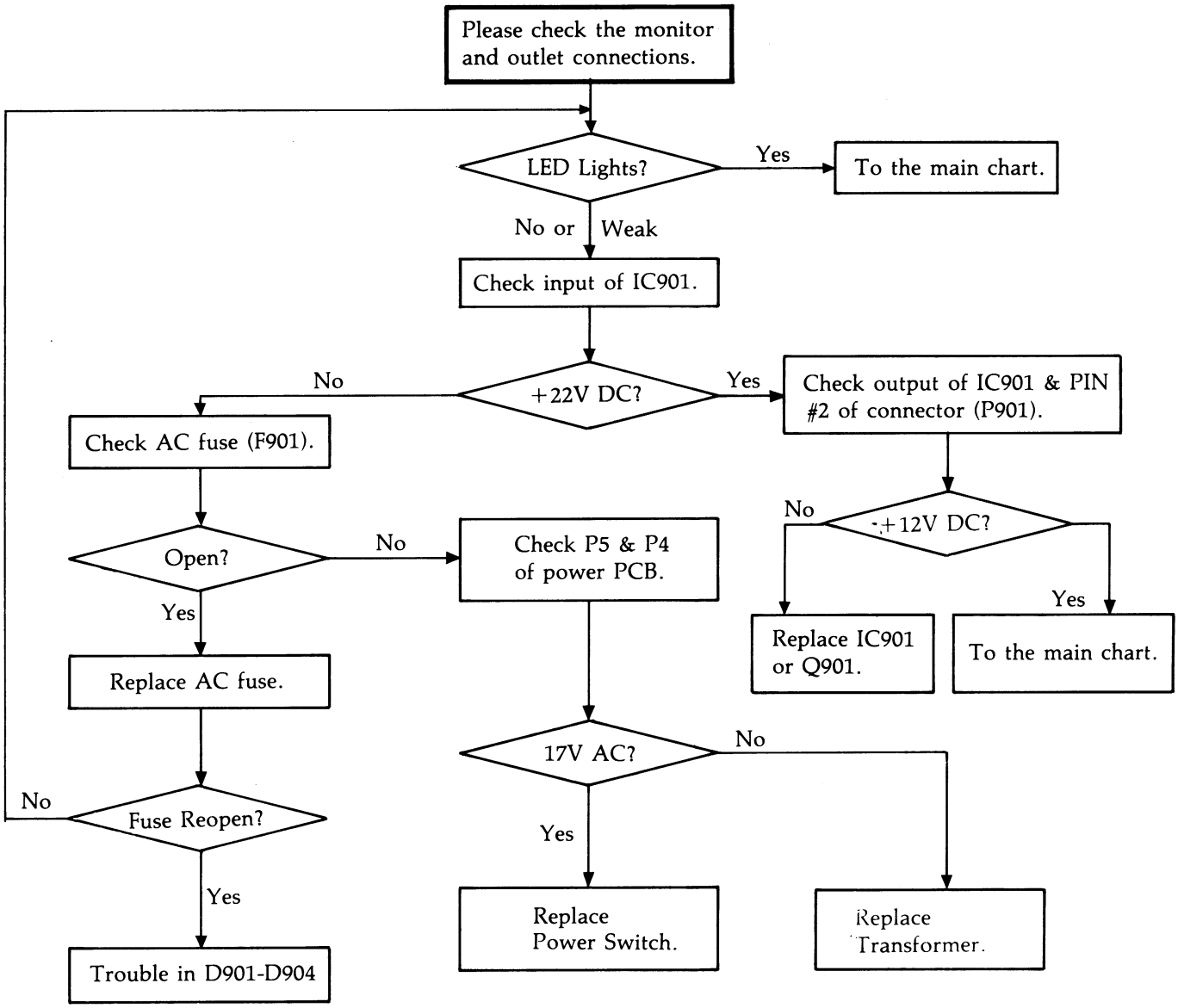
POWER SUPPLY P.C.B (COMPONENT SIDE)

TROUBLESHOOTING CHART

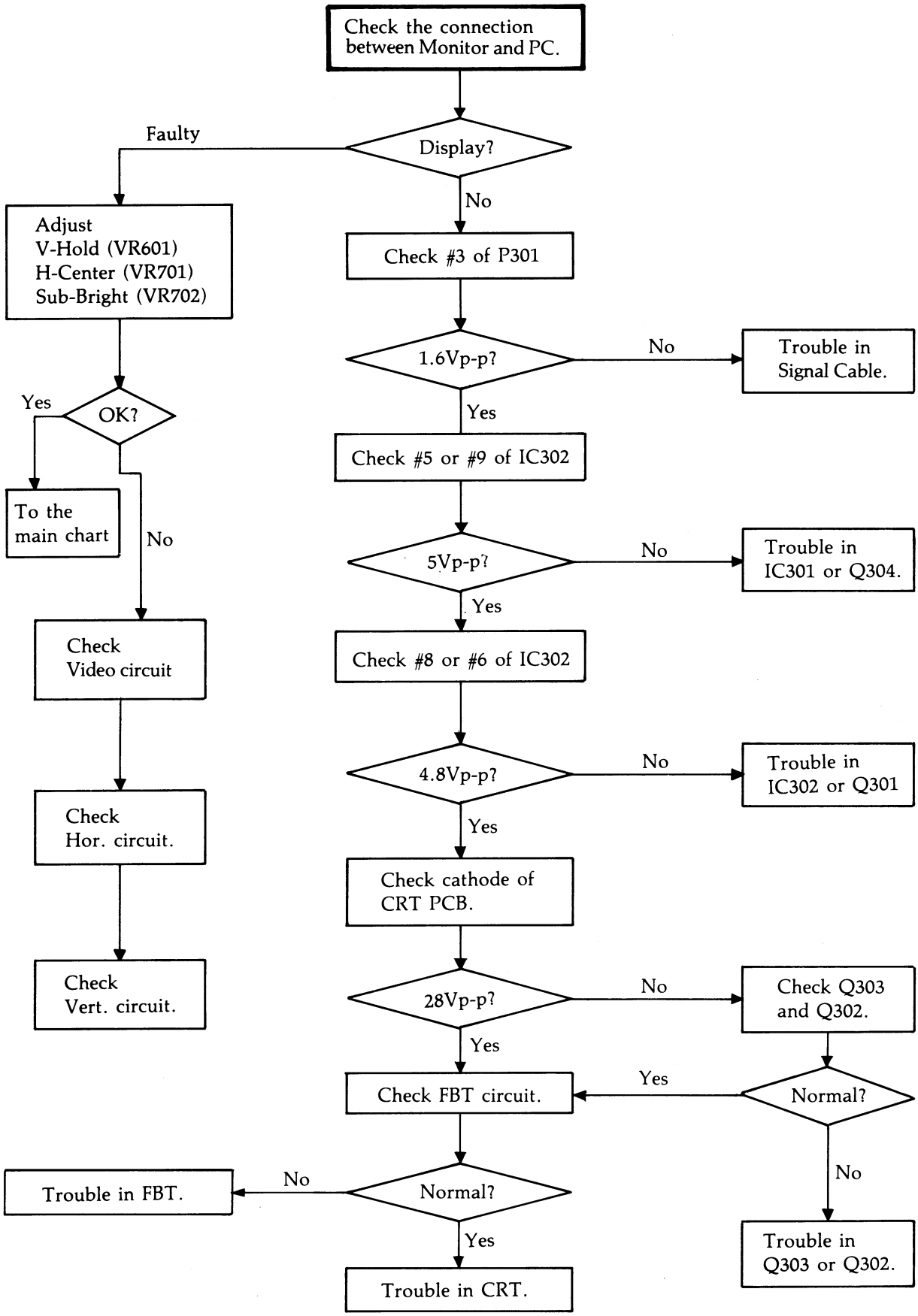
MAIN CHART



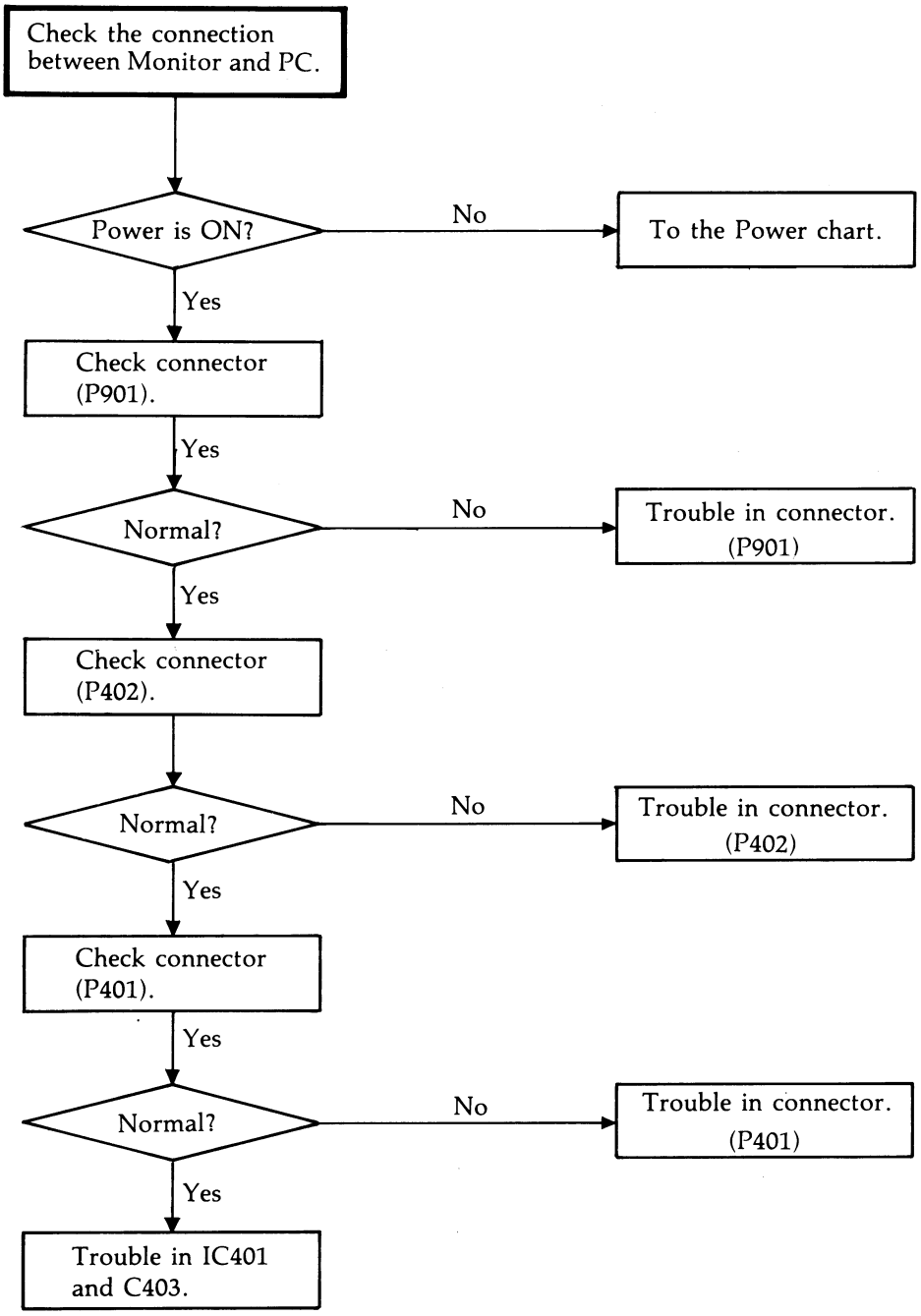
POWER CHART


Please check the monitor and outlet connections.
LED Lights?
Yes
To the main chart.
No or Weak
Check input of IC901.
+22V DC?
No
Yes
Check output of IC901 & PIN #2 of connector (P901).
Check AC fuse (F901).
+12V DC?
No
Yes
Open?
No
Check P5 & P4 of power PCB.
Yes
Replace IC901 or Q901.
To the main chart.
Replace AC fuse.
17V AC?
No
No
Fuse Reopen?
Yes
Yes
Replace Power Switch.
Replace Transformer.
Trouble in D901-D904

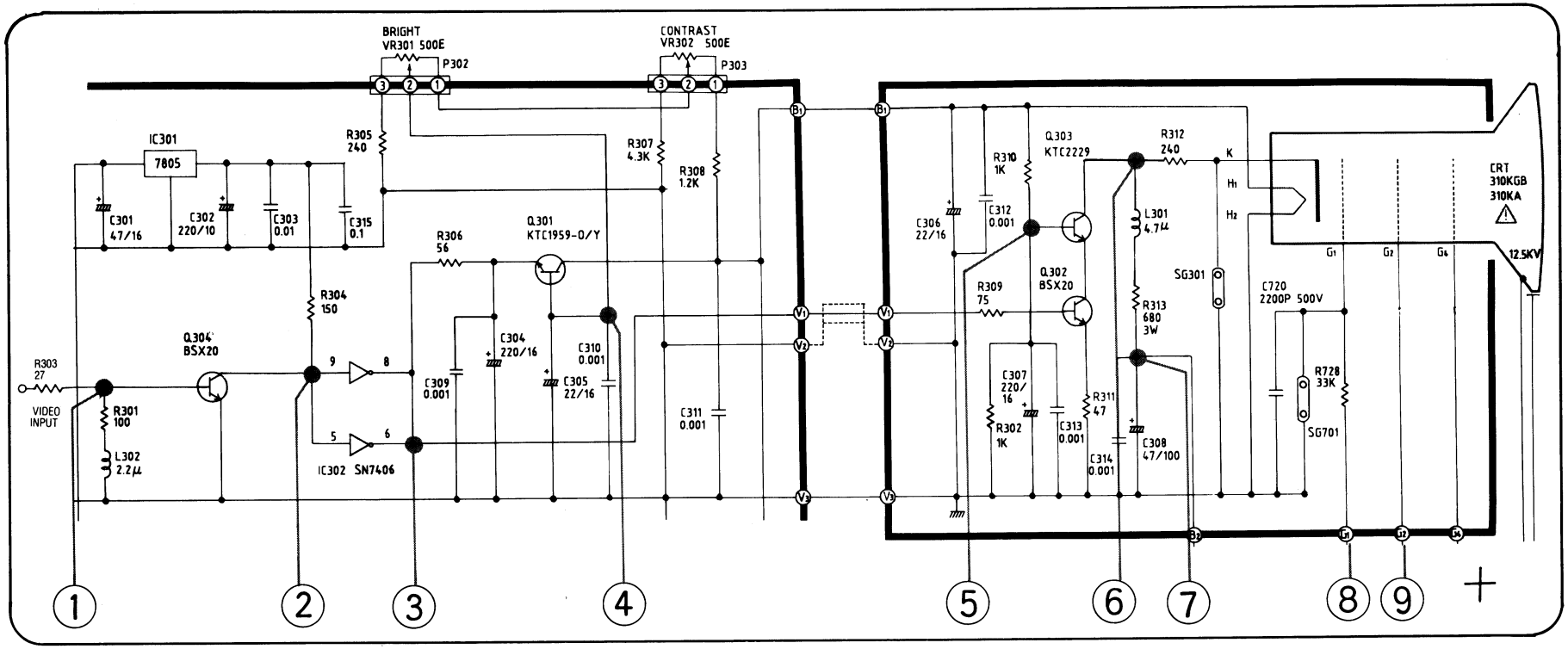
VIDEO CHART

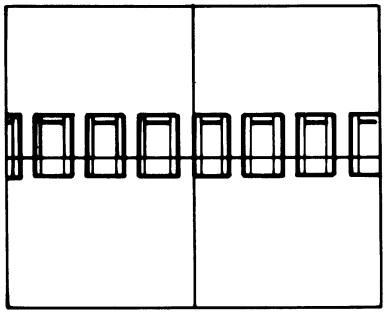

Check the connection between Monitor and PC.
Display?
Faulty
No
Adjust
V-Hold (VR601)
H-Center (VR701)
Sub-Bright (VR702)
Check #3 of P301
1.6Vp-p?
No
Trouble in Signal Cable.
Yes
OK?
Yes
No
To the main chart
Check #5 or #9 of IC302
5Vp-p?
No
Trouble in IC301 or Q304.
Yes
Check Video circuit
Check #8 or #6 of IC302
4.8Vp-p?
No
Trouble in IC302 or Q301
Yes
Check Hor. circuit.
Check cathode of CRT PCB.
Check Vert. circuit.
28Vp-p?
No
Check Q303 and Q302.
Yes
Yes
Check FBT circuit.
Normal?
No
Trouble in FBT.
No
Normal?
Yes
Trouble in Q303 or Q302.
Trouble in CRT.

SOUND CHART

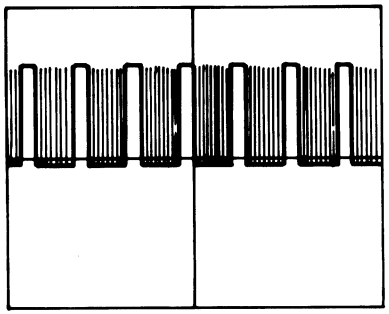

Check the connection between Monitor and PC.
Power is ON?
No
To the Power chart.
Yes
Check connector (P901).
Yes
Normal?
No
Trouble in connector. (P901)
Yes
Check connector (P402).
Normal?
No
Trouble in connector. (P402)
Yes
Check connector (P401).
Yes
Normal?
No
Trouble in connector. (P401)
Yes
Trouble in IC401 and C403.

VIDEO CIRCUIT

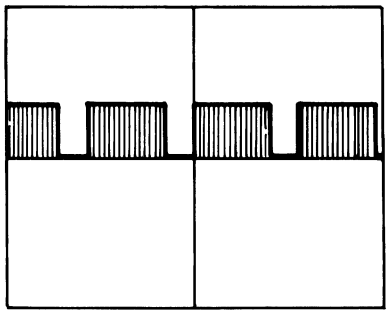




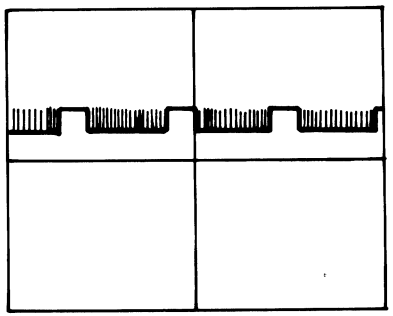
① 0.9Vp-p



② 5Vp-p



③ 3.3Vp-p



⑥ 28Vp-p

Q301 BASE 3.3V
EMITTER 2.67V
COLLECTOR 11.66V

④ :3.93V

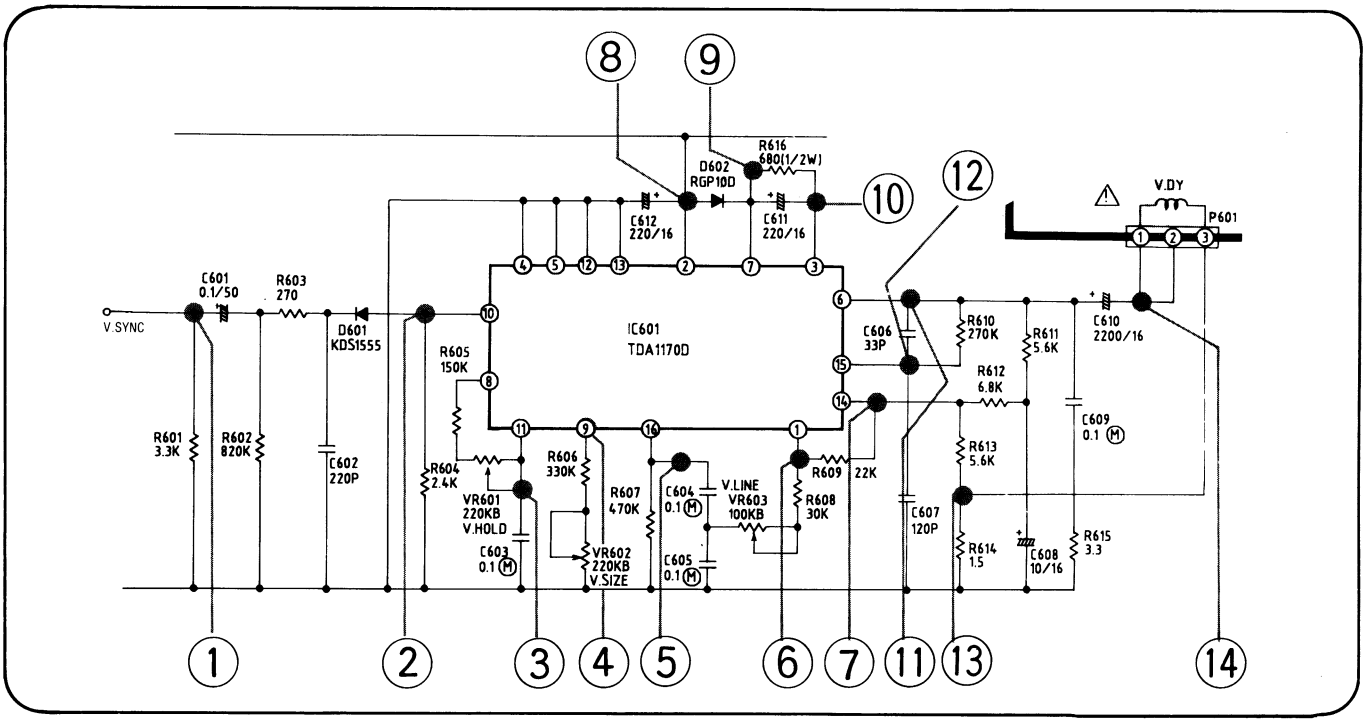
⑤ :5.88V

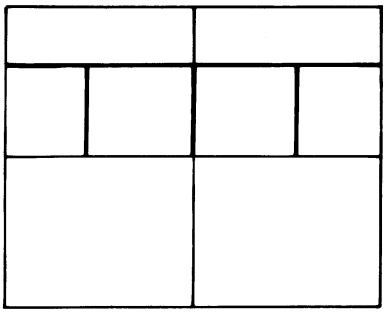
⑦ :70.7V

⑧ :−20.8V

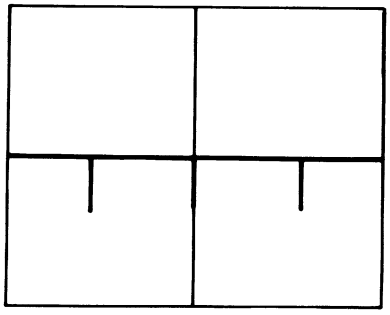
⑨ :600V

VERTICAL DEFLECTION CIRCUIT

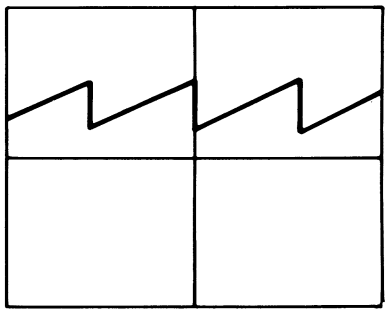




① 5.0Vp-p
71.43Hz

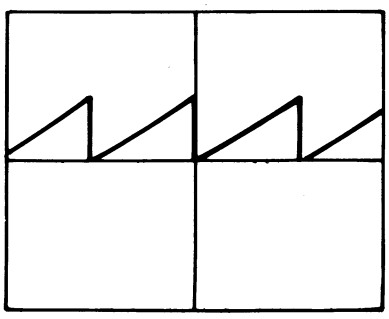


② 0.7Vp-p
71.43Hz

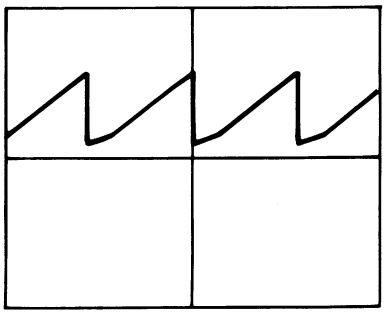


③ 4Vp-p
71.43Hz

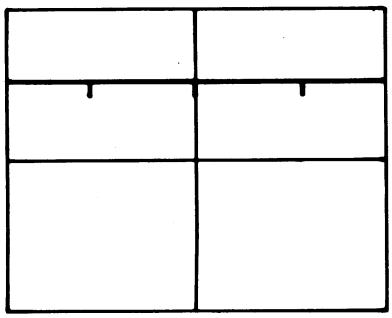
④ 6.68V



⑤ 4.0Vp-p
71.43Hz

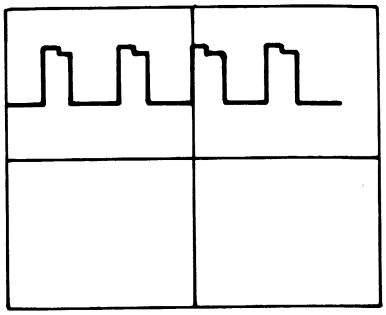


⑥ 4.7Vp-p
71.43Hz

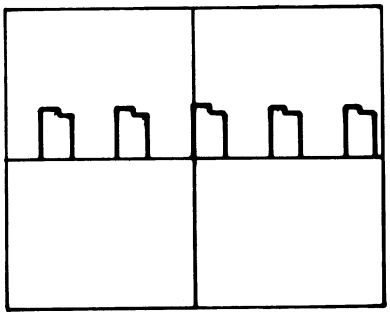


⑦ 2.1Vp-p
71.43Hz

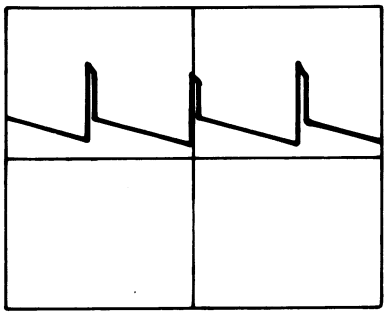
⑧ 11.92V



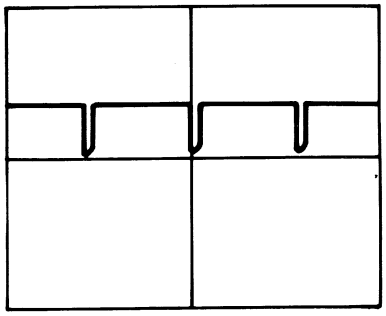
⑨ 24Vp-p
71.43Hz



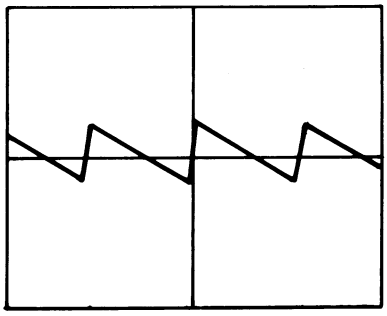
⑩ 12Vp-p
71.43Hz



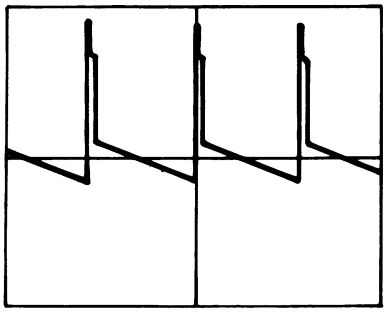
⑪ 2.5Vp-p
71.43Hz



⑫ 0.7Vp-p
71.43Hz

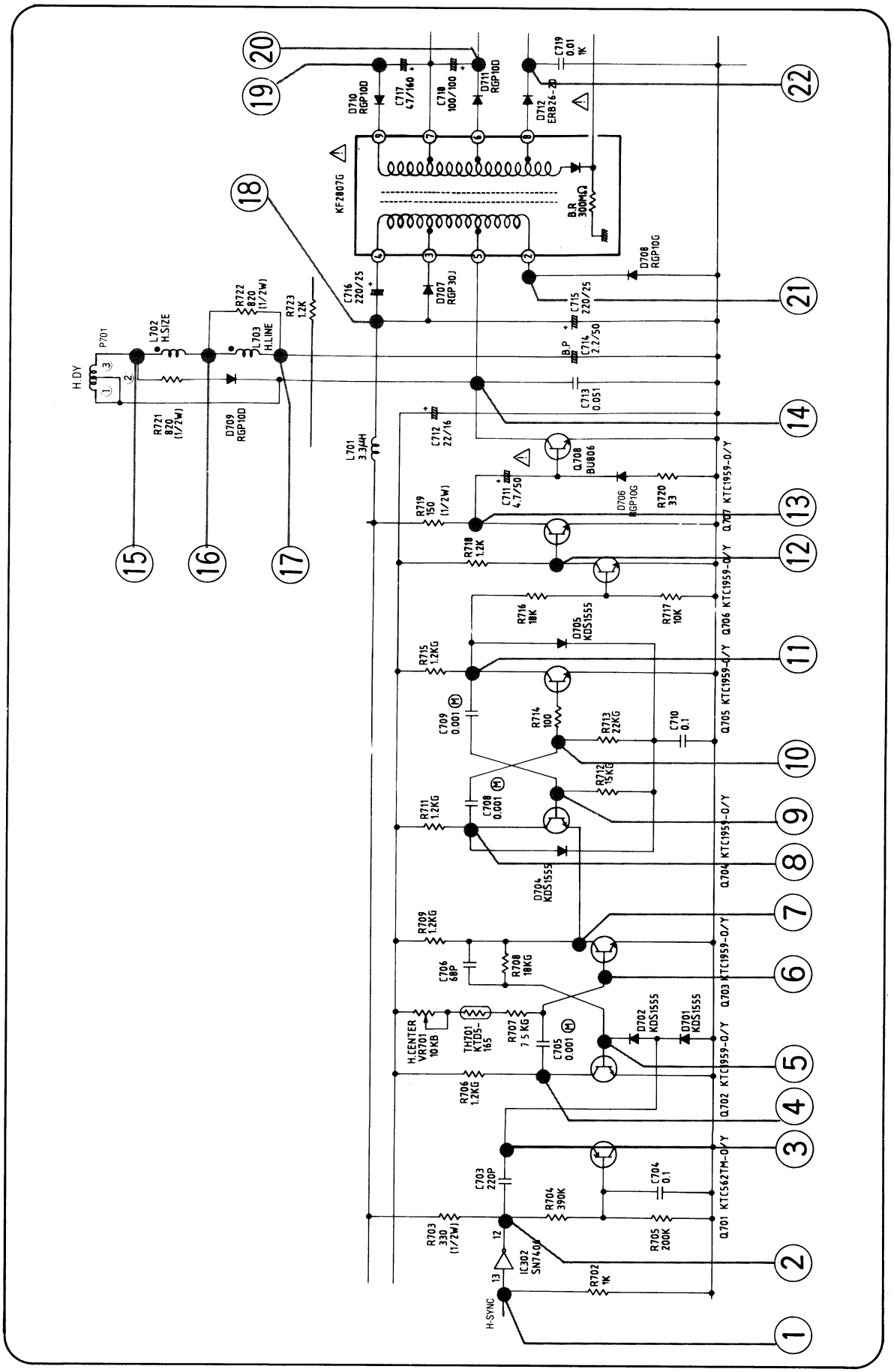


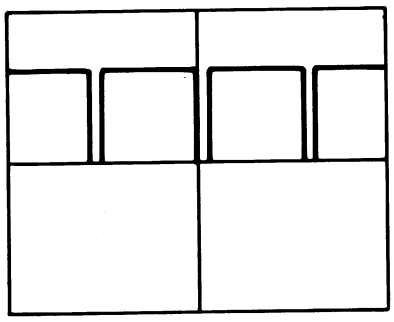
⑬ 0.85Vp-p
71.43Hz



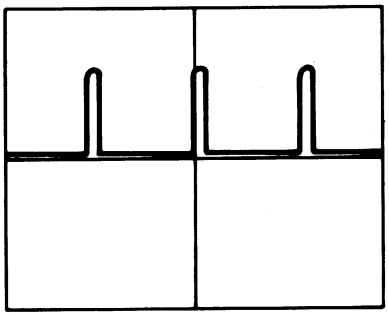
⑭ 22Vp-p
71.43Hz

HORIZONTAL DEFLECTION CIRCUIT

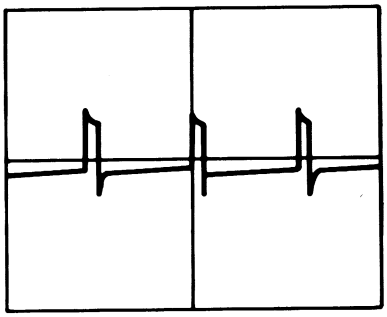




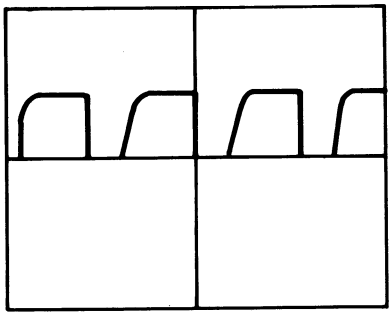
① 5Vp-p
35.7KHz



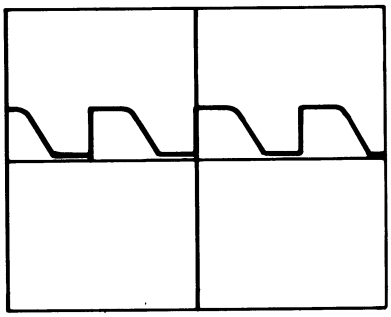
② 11.5Vp-p
35.7KHz



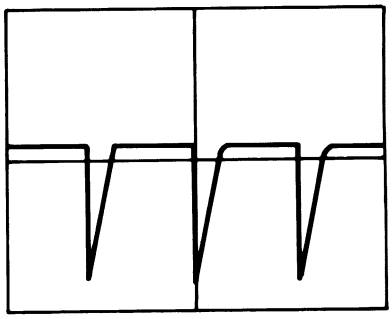
③ 2.3Vp-p
35.7KHz



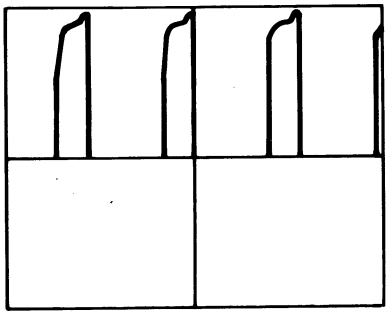
④ 9.0Vp-p
35.7KHz



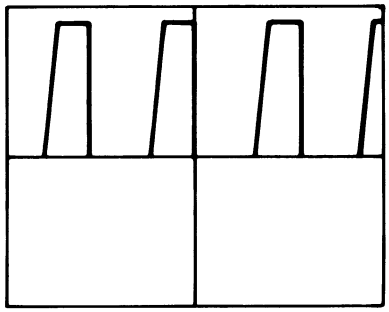
⑤ 0.7Vp-p
35.7KHz



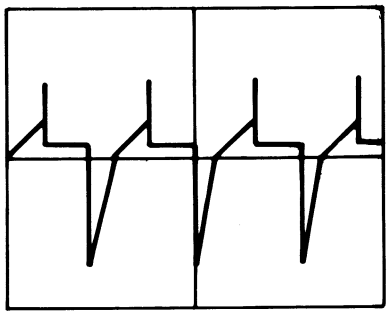
⑥ 6.8Vp-p
35.7KHz



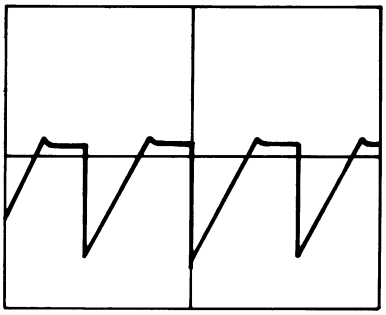
⑦ 8.0Vp-p
35.714KHz



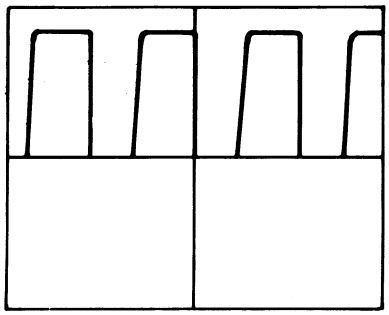
⑧ 7.2Vp-p
35.714KHz



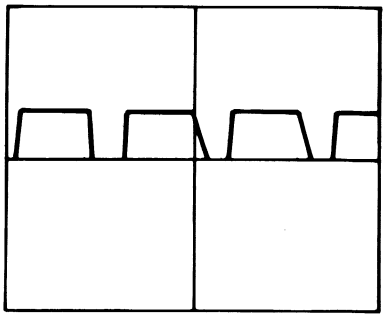
⑨ 7.0Vp-p
35.714KHz



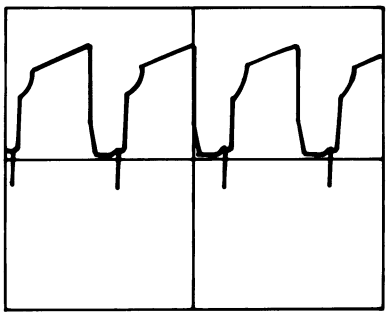
⑩ Vol: 6.4Vp-p
35.714KHz



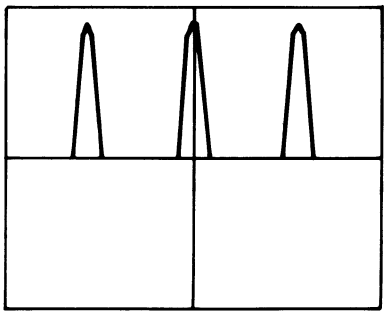
⑪ 7.0Vp-p
35.714KHz



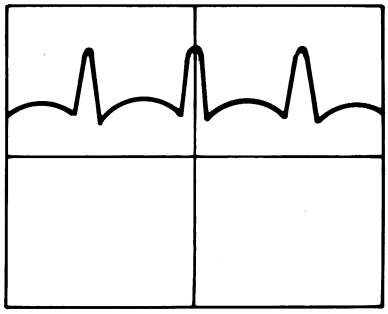
⑫ 0.7Vp-p
35.714KHz



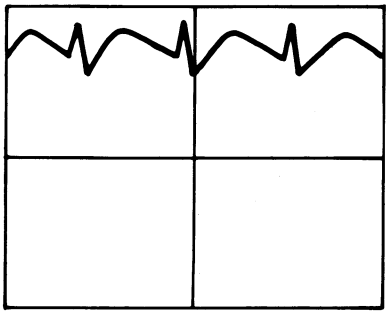
⑬ 4.71Vp-p
35.714KHz



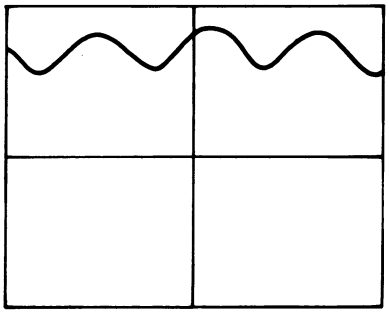
⑭ 180Vp-p
35.714KHz



⑮ 56Vp-p
35.714KHz



⑯ 38Vp-p
35.714KHz



⑰ 36Vp-p
35.714KHz

⑱ 11.8VDC

⑲ −70.0VDC

⑳ 69.5VDC

㉑ 28.8VDC

㉒ 600VDC

REPLACEMENT PARTS LIST

CAUTION: Components identified by the ⚠ symbol in the PARTS LIST and on the SCHEMATIC DIAGRAM have special characteristics important to safety.
Do not degrade the safety of the set through improper servicing.

ABBREVIATIONS: Capacitors .... CC: Ceramic (TC), CE: Chemical, CK: Ceramic (Hi-K), BP: Bipolor, CQ: Mylar, PE: Polyester, PP: Polypropylene
Resistors ..... RD: Carbon Film, RS: Metal Oxide Film, SR: Semifix

(All CC and Plastic Capacitors are ±5% , 50 Volts and all resistor, ±5%, 1/8W unless otherwise noted).
Ⓢ: Recommend Service Parts

LOCATION NO.	PART NO.	DESCRIPTION
		RESISTOR
R301	01157073	RD, 0.125W 100 ohm ±5%
R302	01157097	RD, 0.125W 1K ohm ±5%
R303	01157059	RD, 0.125W 27 ohm ±0.5%
R304	01157077	RD, 0.125W 150 ohm ±5%
R305	01157082	RD, 0.125W 240 ohm ±5%
R306	01157067	RD, 0.125W 56 ohm ±5%
R307	01157112	RD, 0.125W 4.3K ohm ±5%
R308	01157099	RD, 0.125W 1.2K ohm ±5%
R309	01157070	RD, 0.125W 75 ohm ±5%
R310	01157097	RD, 0.125W 1K ohm ±5%
R311	01157065	RD, 0.125W 47 ohm ±5%
R312	01157082	RD, 0.125W 240 ohm ±5%
R313	01341093	RS, 3W 680 ohm ±5%
R401	01157109	RD, 0.125W 3.3K ohm ±5%
R402	01157097	RD, 0.125W 1K ohm ±5%
R403	01157049	RD, 0.125W 10 ohm ±5%
R404	01157110	RD, 0.125W 3.6K ohm ±5%
R405	01157093	RD, 0.125W 680 ohm ±5%
R406	01157121	RD, 0.125W 10K ohm ±5%
R407	01157043	RD, 0.125W 5.6 ohm ±5%
R408	01157113	RD, 0.125W 4.7K ohm ±5%
R409	01314043	RS, 1W 5.6 ohm ±5%
R601	01157109	RD, 0.125W 3.3K ohm ±5%
R602	01157167	RD, 0.125W 820K ohm ±5%
R603	01157083	RD, 0.125W 270 ohm ±5%
R604	01157106	RD, 0.125W 2.4K ohm ±5%
R605	01157149	RD, 0.125W 150K ohm ±5%
R606	01157157	RD, 0.125W 330K ohm ±5%
R607	01157161	RD, 0.125W 470K ohm ±5%
R608	01157132	RD, 0.125W 30K ohm ±5%
R609	01157129	RD, 0.125W 22K ohm ±5%
R610	01157155	RD, 0.125W 270K ohm ±5%
R611	01157115	RD, 0.125W 5.6K ohm ±5%
R612	01157117	RD, 0.125W 6.8K ohm ±5%
R613	01157115	RD, 0.125W 5.6K ohm ±5%
R614	01157029	RD, 0.125W 1.5 ohm ±5%
R615	01157037	RD, 0.125W 3.3 ohm ±5%
R616	01154093	RD, 0.5W 680 ohm ±6%
R701	01154075	RD, 0.5W 120 ohm ±5%
R702	01157097	RD, 0.125W 1K ohm ±5%
R703	01154085	RD, 0.5W 330 ohm ±5%
R704	01157159	RD, 0.125W 390K ohm ±5%
R705	01157152	RD, 0.125W 200K ohm ±5%

LOCATION NO.	PART NO.	DESCRIPTION
R706	01160099	RD, 0.125W 1.2K ohm ±2%
R707	01160118	RD, 0.125W 7.5K ohm ±2%
R708	01160127	RD, 0.125W 18K ohm ±2%
R709	01160099	RD, 0.125W 1.2K ohm ±2%
R711	01160099	RD, 0.125W 1.2K ohm ±2%
R712	01160125	RD, 0.125W 15K ohm ±2%
R713	01160129	RD, 0.125W 22K ohm ±2%
R714	01157073	RD, 0.125W 100 ohm ±5%
R715	01160099	RD, 0.125W 1.2K ohm ±2%
R716	01157127	RD, 0.125W 18K ohm ±5%
R717	01157121	RD, 0.125W 10K ohm
R718	01157099	RD, 0.125W 1.2K ohm ±5%
R719	01154077	RD, 0.5W 150 ohm ±5%
R720	01157061	RD, 0.125W 33 ohm ±5%
R721	01154095	RD, 0.5W 820 ohm ±5%
R722	01154095	RD, 0.5W 820 ohm ±5%
R723	01157099	RD, 0.125W 1.2K ohm ±5%
R724	01157137	RD, 0.125W 47K ohm ±5%
R725	01157133	RD, 0.125W 33K ohm ±5% ⚠
R726	01157133	RD, 0.125W 33K ohm ±5% ⚠
R727	01157163	RD, 0.125W 560K ohm ±5% ⚠
R728	01157133	RD, 0.125W 33K ohm ±5%
R901	01157101	RD, 0.125W 1.5K ohm ±5%
R902	01157097	RD, 0.125W 1K ohm ±5%
R903	01157108	RD, 0.125W 3K ohm ±5%
		CAPACITOR
C301	08110317	CE, 47uF/16V
C302	08110221	CE, 220uF/10V
C303	08200972	CK, 0.01uF/50V
C304	08110221	CE, 220uF/10V
C305	08110315	CE, 22uF/16V
C306	08110315	CE, 22uF/16V
C307	02140321	CE, 220uF/16V
C308	02140617	CE, 47uF/100V
C309	02201060	CK, 0.001uF/500V
C310	02201060	CK, 0.001uF/500V
C311	02201060	CK, 0.001uF/500V
C312	02201060	CK, 0.001uF/500V
C313	02201060	CK, 0.001uF/500V
C314	02201060	CK, 0.001uF/500V
C315	02200978	CK, 0.1uF/50V
C401	08110313	CE, 10uF/16V

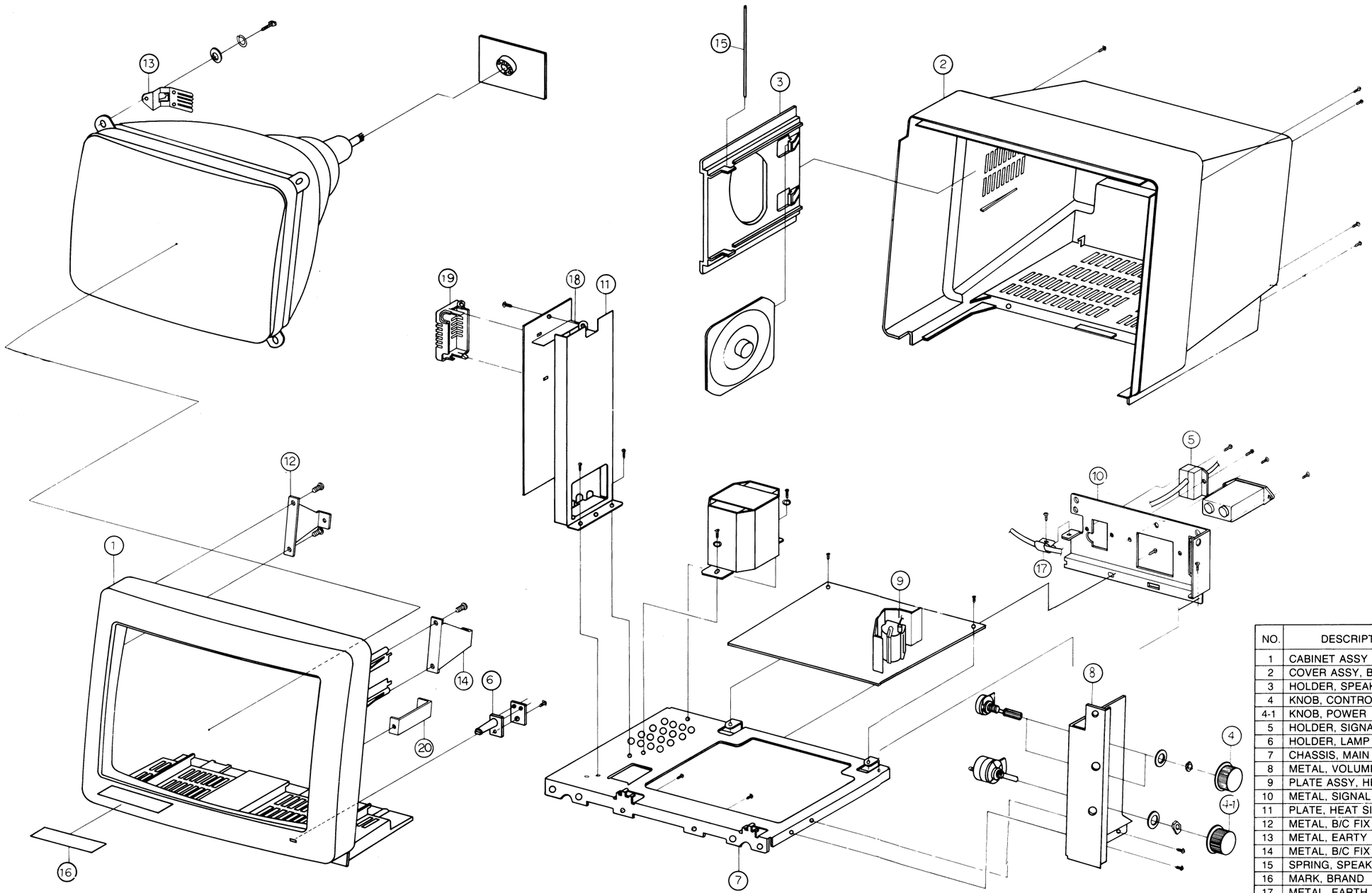
LOCATION NO.	PART NO.	DESCRIPTION
C402	02140323	CE, 470uF/16V
C403	02140323	CE, 470uF/16V
C404	08110313	CE, 10uF/16V
C405	08110511	CE, 4.7uF/50V
C406	08110313	CE, 10uF/16V
C407	08700335	CQ, 0.047uF
C408	02140321	CE, 220uF/16V
C601	08110501	CE, 0.1uF/50V
C602	08200744	CK, 220pF
C603	181-057D	PE, 0.1uF/100V
C604	181-057D	PE, 0.1uF/100V
C605	181-057D	PE, 0.1uF/100V
C606	08300124	CC, 33pF
C607	08300138	CC, 120pF
C608	08110313	CE, 10uF/16V
C609	181-057D	PE, 0.1uF/100V
C610	02140327	CE, 2200uF/16V
C611	02140321	CE, 220uF/16V
C612	02140321	CE, 220uF/16V
C701	02140321	CE, 220uF/16V
C702	02140321	CE, 220uF/16V
C703	02200744	CK, 220pF
C704	02200978	CK, 0.1uF
C705	181-057V	PE, 0.001uF/100V
C706	08300132	CC, 68pF
C708	181-057V	PE, 0.001uF/100V
C709	181-057V	PE, 0.001uF/100V
C710	02200978	CK, 0.1uF
C711	08110511	CE, 4.7uF/50V
C712	08110315	CE, 22uF/16V
C713	181-060Q	PP, 0.051uF
C714	181-020J	BP, 2.2uF/50V
C715	02140421	CE, 220uF/25V
C716	02140421	CE, 220uF/25V
C717	02140717	CE, 47uF/160V
C718	02140619	CE, 100uF/100V
C719	02201472	CK, 0.01uF/1000V ⚠
C901	02201972	CK, 0.01uF/50V
C902	02201972	CK, 0.01uF/50V
C903	02201972	CK, 0.01uF/50V
C904	02201972	CK, 0.01uF/50V
C905	181-205A	CE, 3300uF/35V
C906	02201972	CK, 0.01uF/50V
C907	02140321	CE, 220uF/16V
C908	02201972	CK, 0.01uF/50V
C909	02140323	CE, 470uF/16V
C910	02201972	CK, 0.01uF/50V
C911	02200978	CK, 0.1uF/50V
TRANSISTOR & IC		
Q301 Ⓢ	06179460	KTC1959-O
Q302 Ⓢ	06160018	BSX20
Q303 Ⓢ	06120161	KTC2249
Q304 Ⓢ	06160018	BSX20
Q701 Ⓢ	06100094	KTA562TM-O
Q702 Ⓢ	16179460	KTC1959-O
Q703 Ⓢ	06179400	KTC1959-O
Q704 Ⓢ	06179460	KTC1959-O
Q705 Ⓢ	06179460	KTC1959-O

LOCATION NO.	PART NO.	DESCRIPTION
Q706 Ⓢ	06179460	KTC1959-O
Q707 Ⓢ	06179460	KTC1959-O
Q708 Ⓢ	06160011	TE, BU806 INSULATION EB ⚠
Q901 Ⓢ	06100033	KTA473-O ⚠
IC301 Ⓢ	06300342	IC, GL7805
IC302 Ⓢ	06300325	TTL IC, SN7406
IC401 Ⓢ	06300266	IC, AN5265 (SOUND)
IC601 Ⓢ	06300122	IC, TDA1170D
IC901 Ⓢ	06300327	REGULATOR IC, MC78T 12CT ⚠
DIODE		
D601 Ⓢ	06200117	KDS1555
D602 Ⓢ	06200072	RGP10D
D701 Ⓢ	06200117	KDS1555
D702 Ⓢ	06200117	KDS1555
D704 Ⓢ	06200117	KDS1555
LED Ⓢ	06210019	SLP262B
D705 Ⓢ	06200117	KDS1555
D706 Ⓢ	06200266	RGP10G FAST, RECOVERY
D707 Ⓢ	06200294	RGP30J
D708 Ⓢ	06200266	RGP10G FAST, RECOVERY
D709 Ⓢ	06200072	RGP10D
D710 Ⓢ	06200072	RGP10D
D711 Ⓢ	06200072	RDP10D
D712 Ⓢ	06200120	ERB26-20 ⚠
D901 Ⓢ	06200318	DIODE IN5402 ⚠
D902 Ⓢ	06200318	DIODE IN5402 ⚠
D903 Ⓢ	06200318	DIODE IN5402 ⚠
D904 Ⓢ	06200318	DIODE IN5402 ⚠
VARIABLE RESISTOR		
VR301 Ⓢ	180-071G	RESISTOR VARIABLE VM10A-500E
VR302 Ⓢ	180-071G	RESISTOR VARIABLE VM10A-500E
VR601	180-021R	RESISTOR SEMIFIX SR-19R 220KB
VR602	180-021R	RESISTOR SEMIFIX SR-10R 220KB
VR603	180-021Q	RESISTOR SEMIFIX SR-19R 100KB
VR701	180-021H	RESISTOR SEMIFIX SR-19R 10KB
VR702	180-021Q	RESISTOR SEMIFIX SR-19R 100KB
VR703	180-094A	RESISTOR SEMIFIX H1621C 3.3MB ⚠
MISELLANEOUS		
L301	04011033	4.7uH
L302	04011025	2.2uH
L701	150-166F	3.3uH
L702	150-308H	SIZE COIL
L703	150-399A	H-LIN
F901 Ⓢ	131-007H	T0.5A/250V ⚠
CRT Ⓢ	112-123F	310KAB4K (GOLD STAR) ⚠
DY Ⓢ	153-019A	KY 1392K (MATSUSHITA) ⚠
FBT Ⓢ	154-116A	KF2807G (MATSUSHITA) ⚠
TRANS Ⓢ	151-079C	POWER TRANSFORMER ⚠
P301	366-065F	PIN, AMP ULTREX 172681-7
P302	366-065B	PIN, AMP ULTREX 172681-3
P303	366-065B	PIN, AMP ULTREX 172681-3
P401	366-065B	PIN, AMP ULTREX 172681-3
P402	366-065B	PIN, AMP ULTREX 172681-3
P601	366-065B	PIN, AMP ULTREX 172681-3
P701	366-065B	PIN, AMP ULTREX 172681-3
P702	366-009B	PIN PLUG

LOCATION NO.	PART NO.	DESCRIPTION
P901	366-065B	PIN, AMP ULTREX 172681-3
P902	366-065C	PIN, AMP ULTREX 172681-4
SG301	165-004A	SPARK GAP, AG20PT 152F-L3N
SG701	165-004A	SPARK GAP, AG20PT 152F-L3N
METAL FIXING	430-122A	FUSE HOLDER
TH701 Ⓢ	163-014B	THERMISTOR, KTD5-165
COVER	303-263A	COVER, VIDEO SHIELD
SOCKET	381-067D	SOCKET CRT
NOISE FILTER	381-114A	TDK ZUG 2203-11A
SIGNAL CABLE	387-369A	CONNECTOR ASSY, SIGNAL
POWER CORD	174-095A	CORD POWER UP401./UC401 6FT(G)
CRT EARTH	387-310B	CONNECTOR ASSY, CRT EARTH
SPEAKER	120-017B	SPEAKER, C080A21GB
CONNECTOR	387-923H	CONNECTOR ASSY, SPEAKER
CONNECTOR	387-923F	CONNECTOR ASSY, H-DY
CONNECTOR	387-923G	CONNECTOR ASSY, V-DY
CONNECTOR	387-923E	CONNECTOR ASSY, DC12V
CONNECTOR	387-289K	CONNECTOR ASSY, 3P
CONNECTOR	387-923D	CONNECTOR ASSY, BRIGHT
CONNECTOR	387-923J	CONNECTOR ASSY, LED
CONNECTOR	387-923B	CONNECTOR ASSY, VOLUME
CONNECTOR	387-923C	CONNECTOR ASSY, CONTRAST
POWER SWITCH	180-291A	SWITCH, EVV-G6LF20B14 ⚠
POWER PCB	111-743A	
MAIN PCB	111-609D	
SCHEMATIC DIAGRAM	484-476A	

LOCATION NO.	PART NO.	DESCRIPTION

EXPLODED VIEW



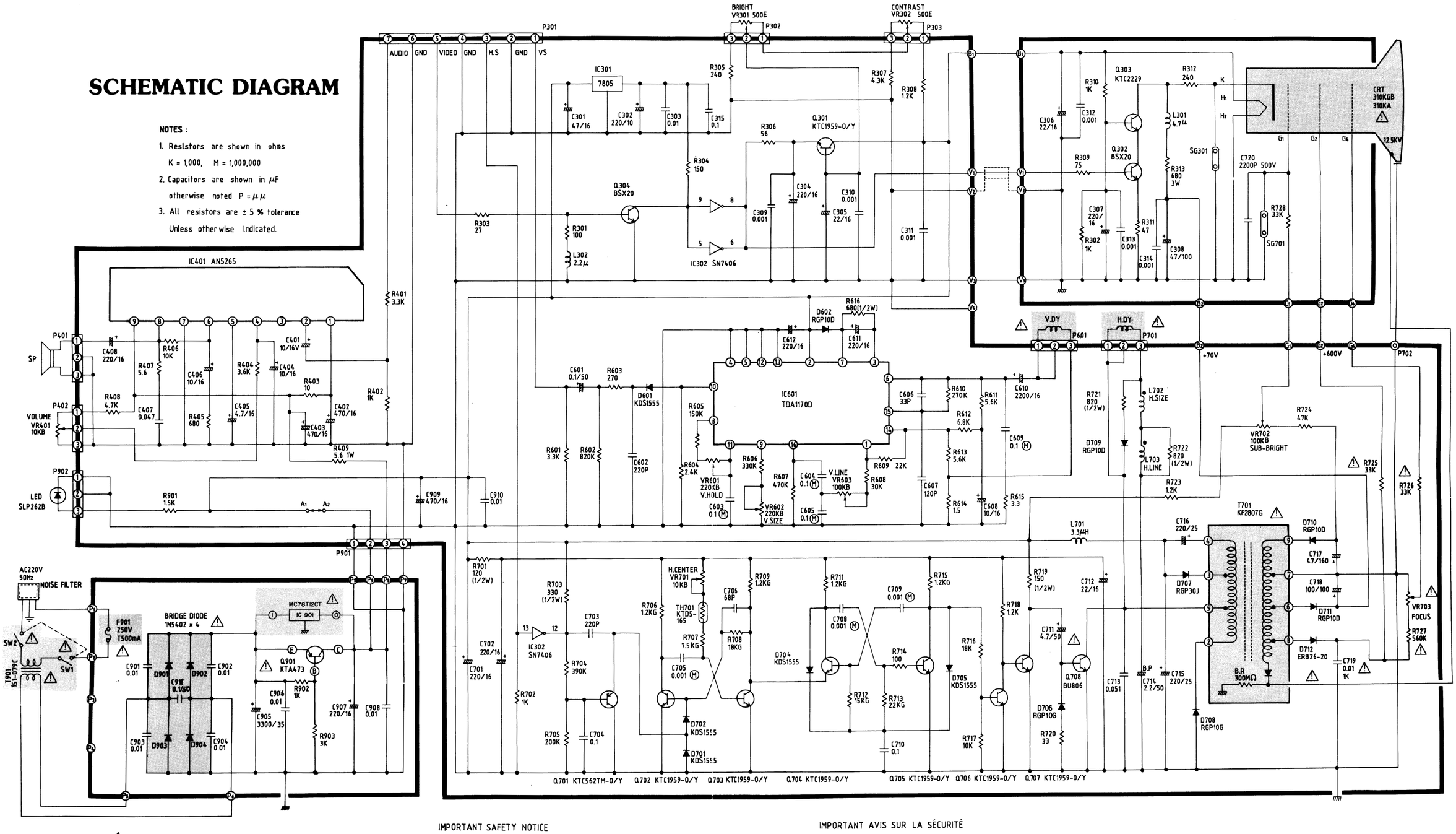
MECHANICAL PARTS

NO.	DESCRIPTION	PART NO.	MATERIAL	Q'TY	REMARK
1	CABINET ASSY	300-105D	HAN NAM HIPS 425TV	1	
2	COVER ASSY, BACK	303-614D	HAN NAM HIPS 425TV	1	
3	HOLDER, SPEAKER	341-236D	HAN NAM HIPS 425TV	1	
4	KNOB, CONTROL	440-488D	LUCKY ABS AF-303	2	
4-1	KNOB, POWER	440-207A	LUCKY ABS AF-303	1	
5	HOLDER, SIGNAL CORD	341-068A	LUCKY ABS AF-303	1	
6	HOLDER, LAMP	341-238A	LUCKY ABS AF-303	1	
7	CHASSIS, MAIN	311-486A		1	
8	METAL, VOLUME FIXING	430-273A		1	
9	PLATE ASSY, HEAT SINK	407-385A		1	
10	METAL, SIGNAL POWER	430-268C		1	
11	PLATE, HEAT SINK	407-384B		1	
12	METAL, B/C FIX (R)	430-420A		1	
13	METAL, EARTY	430-552A		1	
14	METAL, B/C FIX (L)	430-421A		1	
15	SPRING, SPEAKER	320-012B		1	
16	MARK, BRAND	410-193A		1	
17	METAL, EARTH HOLDER	430-554A		1	
18	PLATE, INSULATION	407-448A	SUMILITED	1	
19	COVER, FUSE	303-791A	LUCKY ABS AF-303	1	
20	METAL, VOLUME SUPPORTER	430-553A		1	

SCHEMATIC DIAGRAM

NOTES :

1. Resistors are shown in ohms
   K = 1,000, M = 1,000,000
2. Capacitors are shown in μF
   otherwise noted P = μμ
3. All resistors are ± 5 % tolerance
   Unless otherwise Indicated.



⚠ : REPLACE ALL COMPONENTS MARKED WITH SAFETY SYMBOL WITH IDENTICAL TYPE

IMPORTANT SAFETY NOTICE

THE SHADED AREA ON THIS SCHEMATIC DIAGRAM INCORPORATES SPECIAL FEATURES IMPORTANT FOR PROTECTION FROM X-RADIATION, FIRE AND ELECTRICAL SHOCK HAZARDS, WHEN SERVICING IT IS ESSENTIAL THAT ONLY MANUFACTURER S SPECIFIED PARTS BE USED FOR THE CRITICAL COMPONENTS IN THE SHADED AREAS OF THE SCHEMATIC.

IMPORTANT AVIS SUR LA SÉCURITÉ

LA PARTIE OMBRÉE DE CE DIAGRAME SCHÉMATIQUE COMPREND DIMPORTANTES CARACTÉRISTIQUES SPÉCIALES CONÇUES POUR PROTÉGER DES RAYONS X, ET DES DANGERS DINCENDIE ET DE SECOUSSES ÉLECTRIQUES. EN CAS DE BESOIN SI DES PIÈCES DE CETTE PARTIE OMBREE DOIVÈNT ETRE REMPLACÉ S N'UTILISEZ QUE DES PIÈCES SPÉCIFIÉES PAR LE MANUFACTURIER.

P/N 484-476A